

DRAFT REPORT

**Analysis of the Estimated Underclassification and Overclassification
Likelihoods of the Current *In Vivo* Rabbit Eye Test for Hazard Classification**

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ABSTRACT

1
2
3 An analysis was conducted to estimate the likelihood of underclassifying ocular corrosives or
4 severe irritants as nonsevere irritants or overclassifying ocular nonsevere irritants and
5 nonirritants as ocular corrosives or severe irritants. The analysis used the current sequential
6 three animal *in vivo* rabbit eye test method and the United Nations (UN) Globally Harmonized
7 System (GHS) of Classification and Labeling of Chemicals. The distribution of individual rabbit
8 responses within each hazard classification was used to estimate the likelihood of under- and
9 over-classification likelihoods for a sequential testing strategy (using from one to three rabbits).
10 Based on assumptions about the variability in rabbit responses among substances within each
11 hazard classification, the estimated underclassification likelihoods, based on 723 rabbits tested in
12 181 studies, for corrosives/severe irritants (GHS Category 1) ranged from 4.30% to 13.24%.
13 Analyses based on the physical form of the test substance indicated that underclassification
14 likelihoods for solids were lower than for liquids (2.89%-8.31% vs. 5.36%-15.79%,
15 respectively), although these differences are not statistically significant. Estimated
16 underclassification likelihoods were higher when a corrosive/severe irritant classification was
17 based solely on persistent lesions present at observation day 21. By chemical class, carboxylic
18 acids had the highest underclassification likelihood (16.64%). Overclassification likelihoods of
19 nonsevere and nonirritant substances as Category 1 substances, based on 2481 rabbits tested in
20 596 studies, were estimated to be 6.67% to 7.70% for Category 2A substances, 0.82% to 1.28%
21 for Category 2B substances, and 0.00% for nonirritants. One limitation of this analysis is that it
22 requires an *a priori* assignment of each chemical to a specific irritation category. Using the
23 approach of Springer et al. (1993), the likelihood that an ocular corrosive or severe irritant will
24 be underclassified can be estimated without an *a priori* assignment of each chemical to a specific
25 hazard classification. Using a modified version of the Spring et al. approach, the overall
26 estimated underclassification rate for all irritants was 13.40%, while the estimated
27 overclassification rate for all nonirritants is 2.65%. These rates agree closely with the estimates
28 based on using the previous approach.

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46 **1.0 INTRODUCTION**

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48 **1.1 Background**

49 The Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM)
50 is currently evaluating the validation status of four *in vitro* test methods proposed for identifying
51 ocular corrosives and severe ocular irritants. In support of this evaluation, the National
52 Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological
53 Methods (NICEATM) solicited and searched for ocular data from *in vivo* rabbit eye tests and
54 clinical studies that could be used to assess the accuracy of the *in vitro* methods. While it would
55 also be desirable to have sufficient data to assess the reliability of the *in vivo* rabbit eye test and
56 its accuracy for identifying substances that cause ocular corrosion and severe ocular irritation in
57 humans, no data were found to allow such assessments. However, NICEATM was able to
58 analyze available animal data to estimate the likelihood that ocular corrosives or severe irritants
59 might be underclassified and nonsevere irritants or nonirritants overclassified using current
60 testing guidelines due to the variation in individual animal responses. The analysis is based on
61 the ocular irritancy classification system used in the United Nations (UN) Globally Harmonized
62 System (GHS) of Classification and Labeling of Chemicals (UN 2003)¹.

63

64 **1.2 The GHS Classification System (UN 2003)**

65 For the purpose of international harmonization of the classification of ocular irritants, the GHS
66 classification system (UN 2003) includes two categories, one for irreversible effects on the
67 eye/serious damage to the eye (Category 1), and one for reversible effects on the eye (Category
68 2). The GHS categories are based on severity of the lesions and/or the duration of persistence.
69 Reversible effects are further divided, based on the duration of persistence of ocular lesions as
70 Category 2A (“irritating to eyes”) (reverses within 21 days) and Category 2B (“mildly irritating
71 to eyes”) (reverses within seven days).

72

¹Because the GHS classification system (UN 2003) has been internationally harmonized through the UN, and will be implemented globally in the near future, assessment of the *in vivo* rabbit eye test for identifying corrosives and severe irritants, as defined by this classification system, is the focus of this evaluation.

72 **1.3 Accuracy of the Current Test for Identifying Potential Ocular Corrosives and**
73 **Severe Irritants**

74 It would be desirable to determine the accuracy of the current *in vivo* rabbit eye test for
75 identifying substances capable of producing ocular corrosion or severe irritation in humans. A
76 review of the literature indicates that there are few studies in which rabbit and human responses
77 have been carefully compared under controlled conditions to assess the accuracy of the *in vivo*
78 rabbit eye test method. Therefore, most studies conducted a retrospective evaluation and
79 comparison of responses between humans and rabbits. A review indicates that a number of
80 studies show that responses to mild to moderate irritants were generally similar between rabbits
81 and humans (Lewin and Guillery 1913; Suker 1913; Leopold 1945; Carpenter and Smyth 1946;
82 McLaughlin 1946; Nakano 1958; Barkman et al. 1969; Grant 1974; for summaries of the above
83 studies see McDonald et al. 1987). For a severe irritant, Grant (1974) and Butscher (1953)
84 showed that accidental exposure to pure thioglycolic acid produced similar responses in humans
85 and rabbits.

86
87 In comparison to these studies, there have been studies where the responses to ocular irritants are
88 different between human and rabbits. In some of the reviewed studies, the test substances
89 produced more severe responses in humans than in rabbits (Lewin and Guillery 1913; Gartner
90 1944; Estable 1948; Marsh and Maurice 1971; Grant 1974). For example, Marsh and Maurice
91 (1971) evaluated the effects of a 1% concentration of nonionic detergents in humans. The most
92 severe symptoms were associated with 1% Brij 58, which produced blurred vision and halos with
93 corneal epithelial bedewing, with most effects disappearing with 24 hours. Comparatively,
94 Grant (1974) showed that these substances were generally nondamaging to the rabbit eye when
95 tested at high concentrations. Additional examples of disparate effects between humans and
96 rabbits are summarized in McDonald et al. (1987). Studies with some soaps and surfactants and
97 liquid detergents indicated that more severe responses were produced in rabbits than in humans
98 (Calabrese 1983). Differences in exposures, anatomical and physiological differences, and
99 differences in pain thresholds, combined with differences in mechanism of action of test
100 substances are proposed to play some role in the lack of concordant responses between humans
101 and rabbits.

102

103 Accidental human exposure injury data involving severe or irreversible eye injuries also could be
104 used to determine if substances or products causing these human injuries had not been identified
105 in animal studies. Several U.S. Federal agencies (Occupational Health and Safety
106 Administration [OSHA], Consumer Product Safety Commission [CPSC], and the National
107 Institute for Occupational Safety and Health [NIOSH]) were contacted for accidental human
108 exposure data. NIOSH estimated that there were approximately 39,200 chemical-related eye
109 injuries in 1998, based on emergency department reports for work related eye-injuries (NIOSH
110 2004). Approximately 10,000 of these cases were attributed to an unidentified/unspecified
111 chemical and additional cases (<2500 each) were reported for injuries related to specific
112 chemicals or chemical/product classes. However, specific information on which products were
113 involved are not available and details of the types and severity of ocular injuries sustained were
114 not described. Without more detail about the specific nature of the substances and exposure
115 conditions, these accidental human exposure injury data are not useful for evaluating the
116 accuracy of the *in vivo* rabbit eye test for predicting human severe ocular hazard.

117

118 **1.4 Evaluation of the Reproducibility of the Current Rabbit Eye Test Method for** 119 **Ocular Corrosives and Severe Irritants**

120 Evaluating test method reproducibility requires the availability of data from repeat tests
121 conducted on the same substances within and across multiple laboratories. Substances tested
122 should represent the range of possible test outcomes as well as the range of physicochemical
123 properties of the various substances for which the test method is proposed for use.

124

125 For *in vivo* rabbit eye test data to be useful for a direct evaluation of test method reproducibility,
126 data for substances tested multiple times within and across laboratories were needed.

127 Furthermore, to be useful for this analysis,

- 128 • the study had to have been conducted according to the *in vivo* rabbit eye test method
129 protocol described in Draize et al. (1944), by U.S. Federal agencies (e.g., FHSA 1964,
130 EPA 1998), or the Organisation for Economic Co-operation and Development (OECD)
131 Test Guideline (TG) 405 (OECD 2002), and
- 132 • the data provided had to be sufficient for classifying the ocular irritancy of the test
133 substance according to the GHS classification system (UN 2003) (i.e., individual rabbit

134 data was needed at 1, 2, and 3 days post-treatment, as well as to 21 days post-treatment
135 unless the study was terminated early due to severe effects and the rationale for
136 terminating the study was identified).

137

138 In an attempt to obtain such data, NICEATM searched the published literature and published two
139 *Federal Register (FR)* Notices (March 24, 2004; Volume 69, Number 57; Pages 13859-13861
140 and February 28, 2005; Volume 70, Number 38, Pages 9661-9661) requesting high quality *in*
141 *vivo* data from standardized ocular irritancy test methods using rabbits (e.g., EPA 1998; UN
142 2003). In addition, a request for relevant data as well as a copy of the *FR* notice was mailed to
143 officers of 80 national and international organizations (e.g., professional organizations) with
144 interest in this area. Data were sought from studies conducted to comply with Federal or other
145 national/international testing requirements, but are not publicly accessible because the data were
146 submitted to regulatory authorities, but cannot be released to the public due to their proprietary
147 nature.

148

149 Based on the available published and submitted data, the numbers of substances tested multiple
150 times are too few to conduct a direct evaluation of test method intra- or inter-laboratory
151 reproducibility.

152

152 **2.0 MATERIALS AND METHODS**

153

154 **2.1 Database Development**

155 Data compiled for these analyses are from corrosivity and irritation studies conducted using the
 156 *in vivo* rabbit eye test method described by Draize et al. (1994), U.S. Federal agencies (e.g.,
 157 FHSA 1964, EPA 1998) or the OECD TG 405 (OECD 2002). Data sources and the number of
 158 studies considered appropriate for this analysis are provided in **Table 1**.

159

160 **Table 1. Number of Ocular Toxicity Studies from Various Data Sources**

Data Source	Number of Acceptable Corrosives or Severe Irritant Studies	Number of Acceptable Nonsevere Irritant or Nonirritant Studies	GLP-Compliance
Access Business Group	6	1	Unknown
CTFA	17	36	Yes
ECETOC	30	105	Yes
ExxonMobil	2	8	Some studies
EPA TSCA	33	101	Some studies
FDA	27	88	Unknown
GlaxoSmithKline	8	17	Unknown
ISOPA		8	Yes
Laboratoire Nationale de la Sante	6	41	Yes
NIHS	18	34	Yes
SC Johnson	6	9	Unknown
TNO	5	76	Yes
ZEBET	23	72	Yes
Total	181	596	

161 Abbreviations: CTFA = Cosmetics, Toiletry, and Fragrance Association; ECETOC = European Centre for
 162 Ecotoxicology and Toxicology of Chemicals; EPA = U.S. Environmental Protection Agency; FDA = U.S. Food and
 163 Drug Administration; GLP = Good Laboratory Practice; ISOPA = European Diisocyanate and Polyol Producers
 164 Association; NIHS = Japanese National Institute of Health Sciences; TSCA = Toxic Substances Control Act;
 165 ZEBET = German Center for Documentation and Evaluation of Alternative Methods to Animal Experimentation.

166

167 Not all studies received were considered appropriate for this analysis. Specifically, studies were
 168 excluded that did not follow the standard Draize test protocol and/or did not provide the
 169 individual rabbit data needed to classify the ocular irritancy of a test substance according to the
 170 GHS classification system (UN 2003). Examples of reasons for excluding studies include:

- 171 • The amount administered to the eye of a rabbit was not the standard 0.1 mL or 100 mg,
172 unless a smaller amount was used and, based on the response obtained, the substance
173 could be classified as a GHS ocular corrosive or severe irritant. This criterion was based
174 on the expectation that a substance classified as a nonsevere irritant or nonirritant using a
175 smaller than standard volume might be classified as a severe irritant if the standard
176 volume had been used. In contrast, a substance classified as a corrosive or severe irritant
177 would not be expected to result in a nonsevere or nonirritant classification when tested at
178 the standard volume.
- 179 • The study was terminated prior to day 21 and a positive but noncorrosive response was
180 present in one or more rabbits such that reversibility could not be assessed, unless the
181 study was terminated early for animal welfare reasons and the reason for the early
182 termination was provided in the study documentation.

183

184 Data compiled for this analysis included test substance name or unique identifier; Chemical
185 Abstracts Service Registry Number (CASRN), if available; source of data; chemical class(es);
186 number of rabbits tested; amount of substance administered to the eye of each rabbit; and the
187 ocular response of each rabbit at each time point evaluated. Several of the substances tested
188 were proprietary products, which were identified by a unique identifier and whose formulation
189 and chemical composition were not provided. A summary dataset used for this analysis is
190 provided in **Appendix A**.

191

192 **2.2 Adequacy of *In Vivo* Rabbit Eye Test Data**

193 Ideally, all of the *in vivo* rabbit eye tests should have been conducted in compliance with Good
194 Laboratory Practice (GLP) guidelines. These guidelines are nationally and internationally
195 recognized rules designed to produce high-quality laboratory records (OECD 1998; EPA 2003a,
196 2003b; FDA 2003). To the extent known, compliance with GLP guidelines in the conduct of the
197 study is provided in **Table 1**.

198

199 **2.3 Substance Classification Based on the GHS Classification System (UN 2003)**

200 Prior to evaluating the estimated underclassification and overclassification likelihood of the
201 sequential three animal *in vivo* rabbit eye test method protocol for identifying a substance

202 capable of inducing a corrosive or severe response, individual rabbit responses were classified
 203 according to the GHS classification system (UN 2003). As described in **Section 1.3**, this
 204 classification system delineates substances into three categories: Category 1, Category 2, or
 205 Nonirritant. Category 2 substances can be further divided as Category 2A or 2B, depending on
 206 the time required for reversal of any adverse effects (**Table 2**).

207
 208 For the purpose of this evaluation, Category 1 substances were sub-classified into whether the
 209 classification was based on a single rabbit response (i.e., one of three rabbits with a corneal
 210 opacity score of 4 at any time or a positive response that is not expected to reverse or that does
 211 not fully reverse within 21 days [NICEATM Cat 1A]), or based on at least two of three rabbits
 212 having a mean corneal opacity score ≥ 3 and/or an iritis score > 1.5 (scores for each rabbit are
 213 averaged across observations at days 1, 2, and 3 post-treatment; NICEATM Cat 2A).

214
 215 Based on this classification system, each rabbit tested in the database was assigned one of these
 216 irritancy categories, as described in **Table 2**.

217

218 **Table 2. Criteria Used for Classification of Rabbits According to the GHS**
 219 **Classification System (UN 2003)**

Rabbit Category	Criteria for Classification
Category 1A (Cat 1A)	- Corneal opacity score of 4 at any time - Rabbit with effects not expected to reverse or that do not fully reverse within 21 days
Category 1B (Cat 1B)	- Rabbit with mean corneal opacity score ≥ 3 and/or iritis score > 1.5 (rabbit values are averaged across observation days 1, 2, and 3)
Category 2A (Cat 2A)	Rabbit with mean scores (rabbit values are averaged across observation days 1, 2, and 3) for one of more of the following: Iritis ≥ 1 Corneal opacity ≥ 1 Redness ≥ 2 Chemosis ≥ 2 and the effects fully reverse within 21 days
Category 2B (Cat 2B)	When the effects listed for Category 2A fully reverse within 7 days
Nonirritant	Rabbit mean scores fall below threshold values for Category 1, 2A, and 2B

220

221 Each substance was then classified based upon the number of rabbits within each category and
222 the following classification rules. Since the current classification system was applied
223 retrospectively to some studies where more than three rabbits were tested, the decision criteria
224 for substance classification were expanded to allow for classification of these substances. When
225 more than three rabbits were tested, the proportionality needed to classify a substance was
226 maintained (e.g., 1 of 3 or 2 of 6 positive rabbits were required for classification for most
227 categories). However, in some cases, additional classification rules were necessary to include
228 the available data. These additional rules are distinguished by italicized text.

229

230 *GHS Category 1*

- 231 1. At least 1 of 3 rabbits or 2 of 6 rabbits classified as Cat 1A.
- 232 2. *One of 6 rabbits classified as Cat 1A and another rabbit classified as Cat 1B.*
- 233 3. At least 2 of 3 rabbits or 4 of 6 rabbits classified as Cat 1B.

234

235 If none of the above options were fulfilled, then the following classifications were applied in
236 sequential order:

237

238 *GHS Category 2A*

- 239 1. At least 2 of 3 rabbits or 4 of 6 rabbits classified as Cat 2A.
- 240 2. *One of 3 (2 of 6) rabbits classified as Cat 2A and 1 of 3 (2 of 6) rabbits classified as Cat*
241 *2B.*

242

243 *GHS Category 2B*

- 244 1. At least 2 of 3 rabbits or 4 of 6 rabbits classified as Cat 2B.

245

246 *GHS Nonirritant*

- 247 1. At least 2 of 3 rabbits or 4 of 6 rabbits classified as nonirritant.

248

249 **2.4 Calculations Performed**

250 The estimated under- and over-classification likelihoods were calculated for each hazard
251 classification based on the decision rules and the observed distribution of rabbit responses among

252 all rabbit responses for each subcategory evaluated. Rabbit responses were denoted by 1A, 1B,
253 2A, 2B, and N (for a Cat 1A, Cat 1B, Cat 2A, Cat 2B, or nonirritant response, respectively).
254 Likewise, the probability that a rabbit would produce each of these responses is denoted by p_{1A} ,
255 p_{1B} , p_{2A} , p_{2B} , and p_N . The specific test outcomes for a sequential test protocol (up to three
256 rabbits) are as follows:

257

258 *GHS Category 2A*

259 The following outcomes for a sequential test protocol (up to three rabbits) could lead to a test
260 substance being classified as GHS Category 2A:

- 261 1. 2A-2A (testing stopped). This outcome sequence has a probability of $(p_{2A}) \times (p_{2A})$.
- 262 2. 2A-(1B, 2B, or N)-2A, or (1B, 2B, or N)-2A-2A. This outcome sequence has a
263 probability of $2 \times (p_{2A}) \times (p_{2A}) \times (p_{1B} + p_{2B} + p_N)$.
- 264 3. 2A-2B-N (this outcome can occur in six different orders). This outcome sequence has a
265 total probability of $6 \times (p_{2A}) \times (p_{2B}) \times (p_N)$.
- 266 4. 2A-2B-Cat1B (this outcome can occur in six different orders). This outcome sequence
267 has a total probability of $6 \times (p_{2A}) \times (p_{2B}) \times (p_{1B})$.

268

269 Summing these four probabilities gives the estimated likelihood for GHS Category 1 substances
270 being underclassified as GHS Category 2A substances and the estimated likelihood for GHS
271 Category 2B or nonirritant substances being overclassified as GHS Category 2A substances. The
272 calculated likelihood also would represent the likelihood of correct classification of GHS
273 Category 2A substances.

274

275 *GHS Category 2B*

276 The following outcomes could lead to a GHS Category 2B classification for a test substance:

- 277 1. 2B-2B (testing stopped). This outcome sequence has a probability of $(p_{2B}) \times (p_{2B})$.
- 278 2. 2B-(2A or 1B or N)-2B (this outcome can occur in two different orders). This outcome
279 sequence has a total probability of $2 \times (p_{2B}) \times (p_{2B}) \times (p_{2A} + p_{1B} + p_N)$.

280

281 Summing these two probabilities gives the estimated likelihood for GHS Category 1 or 2A
282 substances being underclassified as GHS Category 2B substances and the estimated likelihood

283 for nonirritant substances being over classified as GHS Category 2B substances. The calculated
284 likelihood also would represent the likelihood of correct classification of GHS Category 2B
285 substances.

286

287 *GHS Nonirritant Category*

288 The following outcomes could lead to a nonirritant classification:

- 289 1. N-N (testing stopped). This outcome sequence has a probability of $(pN) \times (pN)$.
- 290 2. N-(1B or 2A or 2B)-N (this outcome can occur in two different orders). This outcome
291 sequence has a total probability of $2 \times (pN) \times (pN) \times (p1B + p2A + p2B)$.

292

293 Summing these two probabilities gives the estimated likelihood for GHS Category 1, 2A, or 2B
294 substances being underclassified as GHS nonirritants. The calculated likelihood also would
295 represent the likelihood of correct classification of nonirritant substances.

296

297 *Variable Responder Category*

298 Using this testing strategy, two different outcomes could lead to the inability to assign an
299 appropriate GHS classification. In these cases, based on the classification rules described in
300 **Section 2.3**, a majority of the rabbits tested are not classified in the same manner. These
301 outcomes were designated as “variable responders”. This classification could occur based on the
302 following rabbit outcomes:

- 303 1. Cat1B-N-2A (this outcome can occur in six different orders). This outcome sequence has
304 a total probability of $6 \times (p1B) \times (pN) \times (p2A)$.
- 305 2. Cat1B-N-2B (this outcome can occur in six different orders). This outcome sequence has
306 a total probability of $6 \times (p1B) \times (pN) \times (p2B)$.

307

308 The probabilities $p1A$, $p1B$, $p2A$, $p2B$, and pN were estimated from the observed distribution of
309 rabbit responses among all rabbit responses for each subcategory evaluated. Summing these two
310 probabilities gives the estimated likelihood for GHS Category 1, 2A, or 2B substances and
311 nonirritant substances being misclassified as variable responders.

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GHS Category 1

To estimate the overclassification likelihood for GHS Category 2A or 2B substances or nonirritant substances, the likelihood of misclassification (likelihood of underclassification and classification as a variable responder) and correct classification are totaled and subtracted from one.

Due to the nature of the database (i.e., very few substances were tested multiple times within or across laboratories, the number of rabbits tested ranged from one to six), several different calculations were conducted to develop a range of estimated likelihoods for underclassifying a corrosive or severe irritant as a nonsevere irritant or nonirritant and overclassifying a nonsevere irritant or nonirritant as a corrosive or severe irritant.

2.4.1 Calculation 1: Homogeneity of Response for Substances

For this calculation, it was assumed that rabbits have the same (homogeneous) pattern of response for all substances within a given classification category. The advantage of this assumption is that only a single calculation is required to determine the likelihood for underclassifying a corrosive or severe irritant as a nonsevere irritant or nonirritant or overclassifying a nonsevere irritant or nonirritant as a corrosive or severe irritant. However, since the normal variability in response among animals for different test substances is eliminated, the calculation likely will underestimate the overall likelihood.

2.4.2 Calculation 2: Heterogeneity of Response for Substances

For this calculation, it is assumed that rabbits have a different (heterogeneous) pattern of response for each study in the database. For this case, the probability of misclassifying a substance is calculated for each study. The individual probabilities are then pooled to determine the overall likelihood. One limitation of this approach is that the distribution of observed rabbit responses for each substance is based on a small number of rabbits (six or less). However, this approach takes into account variability of response among substances. As a result, this method leads to a higher estimated likelihood than Calculation 1.

343 2.4.3 Calculation 3: Homogeneity of Response for Three Subgroups of GHS Category 1
344 Substances

345 This calculation was developed as an additional estimate of the underclassification likelihood of
346 Category 1 substances. This calculation was based upon the observation that there were three
347 subgroups of GHS Category 1 eye irritants that showed, internally, a relatively homogeneous
348 response. These three groups are:

- 349 • *Strong responders.* These are GHS Category 1 substances that always produce either a
350 Cat 1A or 1B response in all tested rabbits. In essence, these substances have an
351 estimated underclassification likelihood of zero.
- 352 • *Moderate responders.* These are GHS Category 1 substances that produced a Cat 1
353 response in at least 50% but not 100% of the rabbits tested.
- 354 • *Weak responders.* These are GHS Category 1 substances that produced a nonsevere (i.e.,
355 Cat 2A, 2B) or nonirritant response in more than half of the rabbits tested.

356
357 Using this approach, the estimated underclassification likelihoods are based on the pooled results
358 from three subgroups rather than being based on a single computation (Calculation 1) or the
359 pooled results across studies (Calculation 2). This approach takes into account the presence of
360 subgroups of GHS Category 1 substances differing in the proportion of affected rabbits.

361

362 **2.5 Data Sampling**

363 To conduct these analyses using the calculation methods described above, sampling from data
364 based on sequential testing and stopping rules were used:

365

366 *First Rabbit Sampled from Database*

- 367 • If a rabbit is classified as Cat 1A, then stop test and the substance tested is classified as
368 GHS Category 1.
- 369 • If not, record rabbit classification (e.g., Cat 2B) and then test second rabbit.

370

371 *Second Rabbit Sampled from Database*

- 372 • If second rabbit is classified as Cat 1A, then stop test and the substance tested is
373 classified as GHS Category 1.

374 • If second rabbit has the same classification as the first rabbit, (e.g., Cat 2B) then stop test
375 and the substance tested is classified according to the rabbit classifications.

376 • If rabbit responses are different, record rabbit classification and then test third rabbit.

377

378 *Third Rabbit Sampled from Database*

379 • If third rabbit is classified as Cat 1A, then stop test and the substance tested is classified
380 as GHS Category 1.

381 • Otherwise, record classification of third rabbit.

382 • If two of the three rabbits have the same classification, then that classification is used for
383 the substance tested.

384 • If one rabbit is classified as Cat 2B and at least one rabbit is classified as Cat 2A, then the
385 substance tested is classified as GHS Category 2A.

386 • If all rabbits have different classification (e.g., Cat 1B, Cat 2A, and nonirritant), then the
387 substance tested is identified as a “variable responder.”

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405 **3.0 Underclassification Likelihood Calculations for GHS Category 1 Substances**

406
407 Underclassification likelihoods were estimated for the total database and for certain subsets of
408 the total database (e.g., solids versus liquids/gels, selected chemical classes, four different GHS
409 criteria used to identify a severe irritant or corrosive).

410

411 **3.1 Calculation 1: Homogeneity of Response for GHS Category 1 Substances**

412 The distribution of rabbit responses for GHS Category 1 irritants is given in **Table A** in
413 **Appendix B**. The calculations are illustrated using the values from the database (**Table A** in
414 **Appendix B**) and the assignment probabilities described previously (see **Section 2.4**).

415

416 *GHS Category 2A*

417 The likelihood of a GHS Category 1 substance being underclassified as a GHS Category 2A
418 substance is the sum of the following four probabilities, which is 0.0300:

- 419 1. $(96/723) \times (96/723) = 0.0176$
- 420 2. $2 \times (96/723) \times (128/723) \times (96/723) = 0.00624$
- 421 3. $6 \times (96/723) \times (58/723) \times (20/723) = 0.00177$
- 422 4. $6 \times (96/723) \times (58/723) \times (50/723) = 0.00442$

423

424 *GHS Category 2B*

425 The estimated underclassification likelihood of a GHS Category 1 substance being
426 underclassified as a Category 2B substance is the sum of the following two probabilities, which
427 is 0.0094:

- 428 1. $(58/723) \times (58/723) = 0.00644$
- 429 2. $2 \times (58/723) \times (58/723) \times (166/723) = 0.00296$

430

431 *GHS Nonirritant*

432 The estimated underclassification likelihood of a GHS Category 1 substance being
433 underclassified as a GHS nonirritant is the sum of the following two probabilities, which is
434 0.0012:

- 435 1. $(20/723) \times (20/723) = 0.00077$

436 2. $2 \times (20/723) \times (204/723) \times (20/723) = 0.00043$

437

438 *Variable Responder*

439 Finally, the likelihood of a GHS Category 1 substance being underclassified as a “variable
440 responder” is the sum of the following two probabilities, which is 0.0024:

441 1. $6 \times (50/723) \times (20/723) \times (96/723) = 0.00152$

442 2. $6 \times (50/723) \times (20/723) \times (58/723) = 0.00092$

443

444 Adding these summed probabilities for these four categories yields 0.0430 (see **Table 3**) as the
445 overall estimated underclassification likelihood for GHS Category 1 substances.

446

447 **Table 3. Estimated Underclassification Likelihoods for GHS Category 1 Substances**
448 **Using Calculation 1 (Assumes Homogeneity of Response)**

Category	Total Database
GHS Category 2A	0.0300
GHS Category 2B	0.0094
GHS Nonirritants	0.0012
Variable Responders	0.0024
Total	0.0430 (4.30%)

449

See **Table A** in **Appendix B** for the distribution of rabbit responses used to
450 assess underclassification likelihood for GHS Category 1 substances
451 (Calculation 1).
452

453 3.2 Calculation 2: Heterogeneity of Response for GHS Category 1 Substances

454 The pattern of rabbit responses (i.e., Cat 1A, Cat 1B, Cat 2A, Cat 2B, nonirritant) observed for
455 the individual GHS Category 1 studies in the total database is provided in **Table B** in **Appendix**
456 **B**. Based on these probabilities, the estimated underclassification likelihood can be calculated
457 for the heterogeneity assumption. Similar to the Calculation 1 method, the likelihood of a
458 substance being underclassified is calculated for each outcome listed in **Table B** in **Appendix B**.
459 For each irritancy class (e.g., GHS Category 2A), the classification probabilities are then
460 averaged across substances to obtain the overall estimated underclassification likelihood (**Table**
461 **4**).

462

462 **Table 4. Estimated Underclassification Likelihoods for GHS Category 1 Substances**
 463 **Using Calculation 2 (Assumes Heterogeneity of Response)**

Category	Total Database
GHS Category 2A	0.0751
GHS Category 2B	0.0429
GHS Nonirritants	0.0144
Variable Responders	0.0000
Total	0.1324 (13.24%)

464 See **Table B** in **Appendix B** for the distribution of rabbit responses used to assess
 465 underclassification likelihood for GHS Category 1 substances (Calculation 2).
 466

467 **3.3 Calculation 3: Homogeneity of Response for Three Subgroups of GHS Category 1**
 468 **Substances Identified by Distribution of Rabbit Responses within Studies**

469 To combine the attributes of the first two calculation methods (Calculation 1 and 2), an approach
 470 using homogeneity of response for three subgroups of GHS Category 1 substances was
 471 considered. Based on the three subgroups defined in **Section 2.0**, the distribution of response in
 472 each subgroup is summarized in **Table C** in **Appendix B**. The estimated underclassification
 473 likelihood can be calculated as previously described; these probabilities are summarized in **Table**
 474 **5**.

475
 476 **3.4 Subsets of GHS Category 1 Substances**

477 Estimated underclassification likelihoods were calculated for various subsets of GHS Category 1
 478 substances in the database (e.g., the four different GHS criteria used to identify a corrosive or
 479 severe irritant or corrosive, liquids/gels versus solids, selected chemical classes).
 480

481 **3.4.1 GHS Criteria Used to Identify Corrosives and Severe Irritants**

482 One set of analyses compared the four subgroups that were created by NICEATM² for GHS
 483 Category 1 substances, based on the type of response observed in the rabbits that led to
 484 classification of the test substance as a corrosive or severe irritant according to the GHS
 485

² These are not formal subgroups defined by the GHS (UN 2003), but rather were created by NICEATM for the purpose of this analysis.

485 **Table 5. Estimated Underclassification Likelihoods for Three Subgroups of GHS**
 486 **Category 1 Substances using Calculation 3 (Assumes Homogeneity of**
 487 **Response Within Categories)**

Category	Strong Responders	Moderate Responders	Weak Responders	Overall Underclassification Likelihood ¹
GHS Category 2A	0.0000	0.0587	0.2934	0.0768
GHS Category 2B	0.0000	0.0149	0.1126	0.0281
GHS Nonirritants	0.0000	0.0010	0.0188	0.0044
Variable Responders	0.0000	0.0016	0.0112	0.0028
Total	0.0000 (0.00%)	0.0762 (7.62%)	0.4360 (43.60%)	0.1121 (11.21%)

488 See **Table C** in **Appendix B** for the distribution of rabbit responses used to assess underclassification likelihood for
 489 GHS Category 1 substances (Calculation 3).

490 Strong responders are GHS Category 1 substances that produced either a Cat 1A or 1B response in all tested rabbits;
 491 Moderate responders are GHS Category 1 substances that produced a Cat 1 response in at least 50% but not 100% of
 492 the rabbits tested; Weak responders are GHS Category 1 substances that produced a nonsevere irritant (i.e., Cat 2A
 493 or 2B) or nonirritant response in more than half of the rabbits tested.

494 ¹Overall Underclassification Likelihood calculated as an average based on the prevalence of substances within the
 495 three responder categories.

496

497 classification system (UN 2003). These criteria (1 through 4) are:

- 498 • *Criterion 1:* Positive response not based on severity but on persistent lesion involving
 499 cornea, iris, and/or conjunctiva through to day 21 in at least one of three rabbits
- 500 • *Criterion 2:* Positive response based on mean score for first three days (corneal opacity
 501 ≥ 3 and < 4 or iritis ≥ 1.5) in at least two of three rabbits but lesions do not persist through
 502 day 21
- 503 • *Criterion 3:* Positive response based on mean for first three days (corneal opacity ≥ 3 and
 504 < 4 or iritis ≥ 1.5) in at least two of three rabbits and lesions in at least one of three rabbits
 505 that persist through day 21
- 506 • *Criterion 4:* Corneal opacity equal to 4 at any time in at least one of three rabbits

507

508 The distribution of animal responses for GHS Category 1 substances classified according to each
 509 of the four GHS criteria are provided in **Tables D** and **E** in **Appendix B**. Using the three
 510 calculation methods described in **Section 2.0**, a range of estimated underclassification
 511 likelihoods were calculated for each GHS Category 1 criterion using the previously described
 512 calculations (**Table 6**).

513 **Table 6. Estimated Underclassification Likelihoods for GHS Category 1 Substances in the Total Database Distinguished**
 514 **by the GHS Criterion used to Classify the Test Substance as a Corrosive or Severe Irritant**

Category	Calculation 1				Calculation 2				Calculation 3			
	Crit. 1	Crit. 2	Crit. 3	Crit. 4	Crit. 1	Crit. 2	Crit. 3	Crit. 4	Crit. 1	Crit. 2	Crit. 3	Crit. 4
GHS Category 2A	0.0528	0.0058	0.0000	0.0042	0.0907	0.0156	0.0000	0.0236	0.0900	0.0299	0.0000	0.0232
GHS Category 2B	0.0308	0.0020	0.0000	0.0010	0.0747	0.0324	0.0000	0.0159	0.0516	0.0124	0.0000	0.0097
GHS NI	0.0014	0.0000	0.0000	0.0007	0.0108	0.0000	0.0000	0.0135	0.0036	0.0000	0.0000	0.0059
VR	0.0002	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
Total	0.0852 (8.52%)	0.0078 (0.78%)	0.0000 (0.0%)	0.0061 (0.61%)	0.1762 (17.62%)	0.0480 (4.80%)	0.0000 (0.0%)	0.0530 (5.30%)	0.1452 (14.52%)	0.0423 (4.23%)	0.0000 (0.0%)	0.0391 (3.91%)

515 Abbreviations: Crit. = criterion; NI = Nonirritant; VR = variable responder

516 See **Tables D** and **E** in **Appendix B** for the distribution of rabbit responses used to assess underclassification likelihood for GHS Category 1 substances
 517 distinguished by GHS criterion used to classify corrosives or severe irritants.

518 Criterion 1: Positive response based not on severity but on persistent lesion involving cornea, iris, and/or conjunctiva through to day 21 in at least one of
 519 three rabbits; Criterion 2: Positive response based on mean for first three days (corneal opacity ≥ 3 and < 4 or iritis ≥ 1.5) in at least two of three rabbits
 520 but lesions do not persist through day 21; Criterion 3: Positive response based on mean for first three days (corneal opacity ≥ 3 and < 4 or iritis ≥ 1.5) in
 521 at least two of three rabbits and lesions in at least one of three rabbits that persist through day 21; Criterion 4: Corneal opacity equal to 4 at any time in
 522 at least one of three rabbits.

523 Calculation 1 = homogeneity of response for GHS Category 1 irritants; Calculation 2 = heterogeneity of response for GHS Category 1 irritants; Calculation 3 =
 524 homogeneity of response for three subgroups of GHS Category 1 irritants.

525

526 Based on these analyses, the GHS Category 1 criterion with the lowest estimated
 527 underclassification likelihood was for substances that were classified as corrosives or severe
 528 irritants based on criteria 2 or 3. In contrast, the GHS Category 1 criterion with the highest
 529 estimated underclassification likelihood was for substances that were classified as corrosives or
 530 severe irritants based on criterion 1.

531

532 3.4.2 Liquids/Gels versus Solids

533 Another evaluation conducted was based on the physical form of the test substances (i.e., solids
 534 versus liquids/gels). The distributions of data in the total database, by physical property, are
 535 provided in **Tables F and G in Appendix B**. Using the three calculation methods described in
 536 **Section 2.0**, a range of estimated underclassification likelihoods were calculated for each
 537 liquids/gels and solids using the previously described calculations (**Table 7**).

538

539 **Table 7. Estimated Underclassification Likelihoods for GHS Category 1 Substances in**
 540 **the Total Database Tested as Liquids/Gels or Solids**

Category	Calculation 1		Calculation 2		Calculation 3	
	Liquid/Gel	Solids	Liquid/Gel	Solids	Liquid/Gel	Solid
GHS Category 2A	0.0326	0.2737	0.0862	0.0704	0.0840	0.0713
GHS Category 2B	0.0179	0.0004	0.0561	0.0108	0.0455	0.0013
GHS Nonirritant	0.0011	0.0001	0.0156	0.0019	0.0033	0.0010
Variable Responder	0.0020	0.0010	0.0000	0.0000	0.0035	0.0015
Total	0.0536 (5.36%)	0.0275 (2.75%)	0.1579 (15.79%)	0.0831 (8.31%)	0.1363 (13.63%)	0.0751 (7.51%)

541 See **Tables F and G in Appendix B** for the distribution of rabbit responses used to assess underclassification
 542 likelihood for GHS Category 1 substances, based on physical form.

543 Calculation 1 = homogeneity of response for GHS Category 1 irritants; Calculation 2 = heterogeneity of response
 544 for GHS Category 1 irritants; Calculation 3 = homogeneity of response for three subgroups of GHS Category 1
 545 irritants.

546

547 Although the estimated underclassification likelihoods for liquids/gels were a few percentage
 548 points higher than those calculated for solids, these differences are not significant, as determined
 549 by the Mann-Whitney U-test.

550

551 3.4.3 Subsets of GHS Category I Substances, based on Chemical Class

552 Another set of analyses compared the estimated underclassification likelihoods for GHS
553 Category I substances based on chemical class. For the total database, the number of studies in
554 each chemical class and the number of rabbits in each GHS Category are provided in **Table H** in
555 **Appendix B**. Because the small numbers of studies per chemical class for many of the
556 substances makes it difficult to assess whether or not heterogeneity is present within a given
557 chemical class, a single homogeneous calculation (Calculation 1) was conducted for the
558 chemical classes judged to have sufficient data (a minimum of 25 animals). The homogeneity
559 approach was considered reasonable because the data suggest that one important factor
560 contributing to the heterogeneity in the overall database is that some chemical classes are
561 associated with lower variability in responses among tested rabbits. The results of the estimated
562 underclassification likelihood calculations for the 12 chemical classes with 25 or more rabbits
563 (formulations, organic compounds, alcohols, amines, carboxylic acids, salts, ethers, esters,
564 heterocyclics, phenols, inorganics, and onium compounds) are provided in **Table 8**.

565

566 The estimated underclassification likelihoods for six (formulations, organic compounds,
567 alcohols, salts, ethers, esters) of the 12 chemical classes analyzed were similar to each other and
568 within the range of underclassification likelihoods estimated for the total database; these
569 likelihoods ranged from 4.68% for formulations to 10.89% for alcohols. Among the remaining
570 six chemical classes analyzed, the estimated underclassification likelihoods for five classes were
571 relatively low (0.00% for onium compounds and phenols, 0.48% for inorganics, 2.45% for
572 amines, 2.51% for heterocyclics) while the estimated underclassification likelihood for
573 carboxylic acids (16.64%) was higher.

574 **Table 8. Estimated Underclassification Likelihoods for GHS Category 1 Substances in**
 575 **the Total Database, Based on Chemical Class**

	Formulations	Alcohols	Amines	Organic Compounds	Carboxylic acids	Salts
Number of Studies	62	23	22	21	19	19
Number of Rabbits	306	89	81	68	66	65
GHS Category 2A	0.0286	0.0979	0.0228	0.0562	0.0891	0.0647
GHS Category 2B	0.0153	0.0035	0.0008	0.0175	0.0567	0.0095
GHS Nonirritant	0.0013	0.0020	0.0003	0.0092	0.0072	0.0095
Variable Responder	0.0016	0.0055	0.0006	0.0103	0.0140	0.0039
Total	0.0468 (4.68%)	0.1089 (10.89%)	0.0245 (2.45%)	0.0932 (9.32%)	0.1664 (16.64%)	0.0876 (8.76%)

576

	Ethers	Esters	Heterocycles	Phenols	Inorganics	Onium compounds
Number of Studies	11	10	12	6	7	9
Number of Rabbits	39	37	37	31	29	29
GHS Category 2A	0.0467	0.0213	0.0090	0.0000	0.0048	0.0000
GHS Category 2B	0.0248	0.0272	0.0161	0.000	0.0000	0.0000
GHS Nonirritant	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
Variable Responder	0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0760 (7.60%)	0.0485 (4.85%)	0.0251 (2.51%)	0.0000 (0.0%)	0.0048 (0.48%)	0.0000 (0.0%)

577 See **Table H** in **Appendix B** for the distribution of rabbit responses used to assess underclassification likelihood for
 578 GHS Category 1 substances, based on chemical class. Estimated underclassification likelihoods based on
 579 Calculation 1, which assumes homogeneity of response among rabbits for GHS Category 1 irritants within a
 580 chemical class.

581 Chemical classes in table are ordered by decreasing number of rabbits tested.

582 Chemical class assignments are based on chemical structures; formulations are mixtures of chemicals, therefore
 583 individual chemical class assignments could not be made. Not all substances could be classified by chemical class
 584 and some substances were classified into more than one chemical class.

585 **4.0 Underclassification and Overclassification Likelihood Calculations for GHS**
 586 **Category 2A, 2B, and Nonirritant Substances**

587
 588 **4.1 Calculation 1: Homogeneity of Response for GHS Category 2A, 2B, and Nonirritant**
 589 **Substances**

590 The distribution of rabbit responses for substances judged to be GHS Category 2A, 2B and
 591 nonirritants are given in **Table I** in **Appendix B**. Using this distribution of rabbits and the
 592 calculations previously described in **Section 3.1**, the estimated underclassification and
 593 overclassification likelihoods are provided (**Table 9**).

594
 595 **Table 9. Estimated Overclassification and Underclassification Likelihoods for GHS**
 596 **Category 2A, 2B, and Nonirritant Substances Using Calculation 1 (Assumes**
 597 **Homogeneity of Response)**

Category	GHS Category 2A Substances	GHS Category 2B Substances	Nonirritant Substances
GHS Category 1	0.0770	0.0128	0.000
GHS Category 2A	0.8370 (correct classification)	0.0521	0.0008
GHS Category 2B	0.0595	0.8553 (correct classification)	0.0015
GHS Nonirritants	0.0157	0.0753	0.9977 (correct classification)
Variable Responders	0.0108	0.0045	0.0000
Overclassification as a Category 1 Substance Likelihood	0.0770 (7.7%)	0.0128 (1.28%)	0.0000 (0.00%)

598 See **Table I** in **Appendix B** for the distribution of rabbit responses used to assess overclassification and
 599 underclassification likelihoods for GHS Category 2A, 2B, and nonirritant substances (Calculation 1).
 600

601 **4.2 Calculation 2: Heterogeneity of Response for GHS Category 2A, 2B, and**
 602 **Nonirritant Substances**

603 The pattern of rabbit responses observed for the individual GHS Category 2A, 2B, and
 604 nonirritant studies in the total database is provided in **Table J** in **Appendix B**. Based on these
 605 probabilities, the estimated correct classification, overclassification and underclassification
 606 likelihoods were calculated, using the heterogeneity assumption (see **Table 10**).

607

608 **Table 10. Estimated Overclassification and Underclassification Likelihoods for GHS**
 609 **Category 2A, 2B, and Nonirritant Substances Using Calculation 2 (Assumes**
 610 **Heterogeneity of Response)**

Category	GHS Category 2A Substances	GHS Category 2B Substances	Nonirritant Substances
GHS Category 1	0.0667	0.0082	0.0000
GHS Category 2A	0.7541 (correct classification)	0.0408	0.0047
GHS Category 2B	0.1239	0.8160 (correct classification)	0.00145
GHS Nonirritants	0.0490	0.1349	0.9808 (correct classification)
Variable Responders	0.0063	0.0000	0.0000
Overclassification as a Category 1 Substance Likelihood	0.0667 (6.67%)	0.0082 (0.82%)	0.0000 (0.00%)

611 See **Table J** in **Appendix B** for the distribution of rabbit responses used to assess overclassification and
 612 underclassification likelihoods for GHS Category 2A, 2B, and nonirritant substances (Calculation 2).
 613

613 5.0 EQUIVOCAL SUBSTANCES

614

615 In addition to the substances used in the statistical analyses described in **Sections 3.0** and **4.0**,
616 there were a total of 15 substances (less than 2% of the total) that could not be easily classified
617 based on the pattern of responses observed (i.e., there was no consensus response observed in the
618 rabbits tested). Therefore, they were excluded from the previously described analyses. Since
619 these substances (as well as some additional 2A and 2B substances that displayed severe
620 responses in a minority of the tested rabbits) could impact the underclassification likelihood
621 calculated for Category 1 substances, it was determined that additional analysis should be
622 conducted which included these substances.

623

624 For nine of the 15 substances, at least one animal in each study produced a Category 1A
625 response; for the remaining six substances the animal responses were divided between Category
626 2A, 2B, and nonirritants (**Table K** in **Appendix B**). It was determined that for the nine
627 substances where a Category 1A response was seen in a single animal, they would be reclassified
628 as Category 1 substances. This assumption was based on the observation that of all the rabbits
629 tested for the nonsevere irritants and nonirritants, 0.4% (9/2481) produced a Category 1A
630 response (see **Table I** in **Appendix B**). Comparatively, 69% (499/723) of the rabbits tested for
631 the severe irritants produced a Category 1A response (see **Table C** in **Appendix B**). Extending
632 this observation to substances originally classified as Category 2A and 2B substances, led to
633 eight Category 2A substances and one Category 2B substance being reclassified as Category 1.
634 This yielded a total of 18 substances being included into this analysis.

635

636 For this analysis, Calculation 3 was used to assess the impact of these additional 18 substances.
637 The distribution of animal responses for these 18 substances led each being classified as a “weak
638 responder” (see **Table L** in **Appendix B**). The distribution of rabbits within the three groups
639 (strong, moderate, and weak responders) are provided in **Table M** in **Appendix B**. The
640 estimated underclassification likelihoods for each of these subcategories are given below (**Table**
641 **11**).

642

642

643 **Table 11. Estimated Underclassification Likelihoods for Three Subgroups of GHS**
 644 **Category 1 Substances using Calculation 3 (Assumes Homogeneity of**
 645 **Response and including 18 Equivocal Substances)**

Category	Strong Responders	Moderate Responders	Weak Responders	Overall Likelihood	
				Total Database	Total Database (w/o 18 substances)
GHS Category 2A	0.0000	0.0587	0.3250	0.1058	0.0768
GHS Category 2B	0.0000	0.0149	0.0954	0.0307	0.0281
GHS Nonirritants	0.0000	0.0010	0.0676	0.0202	0.0044
Variable Responders	0.0000	0.0016	0.0125	0.0040	0.0028
Total	0.0000 (0.00%)	0.0762 (7.62%)	0.5005 (50.05%)	0.1607 (16.07%)	0.1121 (11.21%)

646

See Table M in Appendix B for the distribution of rabbit responses used to assess underclassification likelihood (Calculation 3).

647

648 Strong responders are GHS Category 1 substances that produced either a Cat 1A or 1B response in all tested rabbits;

649 Moderate responders are GHS Category 1 substances that produced a Cat 1 response in at least 50% but not 100% of

650 the rabbits tested; Weak responders are GHS Category 1 substances that produced a nonsevere irritant (i.e., Cat 2A

651 or 2B) or nonirritant response in more than half of the rabbits tested.

652

652 **6.0 MODIFIED SPRINGER ANALYSIS AS APPLIED TO THE *IN VIVO* OCULAR**
653 **TOXICITY DATABASE**

654
655 One limitation of the preceding underclassification likelihood analysis is that it requires an *a*
656 *priori* assignment of each chemical to a specific irritation classification category (GHS Category
657 I, 2A, 2B or nonirritant). Since there is little or no human data upon which to base this
658 classification, this assignment was based on the results of the *in vivo* rabbit eye test itself. As a
659 consequence, there is a circularity in using the results of *in vivo* rabbit eye studies as the basis for
660 estimating the over- and under-classification likelihoods associated with the same test. Thus, an
661 alternative approach was sought that did not require this *a priori* assignment of chemicals to
662 classification categories.

663
664 Springer et al. (1993) proposed one such approach. This methodology has limitations of its own
665 in that it assumes only two responses (irritant and nonirritant) and also assumes a fixed number
666 of animals (e.g., the number of animals tested per study is 6). Importantly, the Springer et al.
667 methodology assumes a binomial distribution of responses for both irritants and nonirritants (i.e.,
668 no heterogeneity of response). This assumption is violated in data for the irritants used in the
669 underclassification likelihood analysis.

670
671 Specifically, the Springer approach estimates three parameters that provide the best fit to the
672 observed data:

673 pn: the proportion of nonirritants in the database

674 pi+: the likelihood of an irritant producing a positive response

675 pn+: the likelihood of a non-irritant producing a positive response.

676
677 The Springer model is essentially a mixture of two binomial distributions, with the relative
678 frequency of nonirritants being one of the three parameter estimated (pn). Thus, within the
679 irritant and nonirritant categories, the expected distribution of outcomes can be calculated based
680 on the usual binomial model probabilities (pi+ for irritants; pn+ for non-irritants). For example,
681 for a six animal test, the expected likelihood of an irritant producing 6/6 positive responses is
682 simply (pi+)⁶. The corresponding likelihood of a 5/6 response is 6x(pi+)⁵x(1-pi+). Other

683 expected binomial frequencies can be calculated in a similar manner. Estimates of the
 684 parameters p_n , p_i , and p_{n+i} that provide the best fit to the observed data can then be obtained by
 685 minimizing the Chi-Square Goodness of fit test statistic that compares the observed and expected
 686 distribution of outcomes.

687
 688 The application of the Springer et al. methodology to the NICEATM *in vivo* rabbit eye test
 689 database was evaluated. To accommodate the two response categories used by Springer et al.,
 690 the data were collapsed into two irritation categories (GHS Category 1 substances were classified
 691 as irritants and GHS Category 2A, 2B and nonirritants were classified as nonirritants). As with
 692 Springer et al., the studies used for the evaluation was limited to those that tested six rabbits;
 693 these studies represented 38% (303/792) of the studies available. The distribution of all six
 694 rabbit outcomes in the database is provided in **Table 12**.

695
 696 **Table 12. Distribution of Studies Based on the Number of Rabbits Producing an**
 697 **Irritant (GHS Category 1) Response**

Number Irritant (GHS Category 1) Rabbits/ Total Rabbits Evaluated	Frequency
6/6	34
5/6	8
4/6	6
3/6	7
2/6	15
1/6	21
0/6	212
Total	303

698
 699 The Springer et al. approach assumes that this distribution represents a mix of irritants and
 700 nonirritants. It estimates three parameters that provide the best fit to these data: (1) the
 701 proportion of nonirritants in the database; (2) the likelihood of an irritant producing a positive
 702 response; and (3) the likelihood of a nonirritant producing a positive response. An application of
 703 the Springer method to the data above produces the following parameter estimates:

704

704 *Proportion of nonirritants in the database = 80.1%*

705 *Probability of a positive response for an irritant = 85.6%*

706 *Probability of a positive response for a non-irritant = 4.6%*

707

708 The fit produced by the Springer et al. model is provided below (**Table 13**). As can be seen from
 709 the analysis, the expected total does not fit well with the observed values. The reason for the
 710 poor fit is that the irritant database has extra-binomial variation (i.e., is not homogeneous), so the
 711 Springer et al. model under-estimates the observed variability in response. Because of this, the
 712 underclassification likelihood resulting from an application of the Springer et al. method is rather
 713 low (i.e., $(1-.856)(1-.856)(1-.856)$ or 0.3%).

714

715 **Table 13. Results of Analysis Based on the Springer et al. Approach**

Number Irritant (GHS Category 1) Rabbits/Total Rabbits Evaluated	Expected			Observed
	Irritants	Nonirritants	Total	
6/6	23.72	0.00	23.72	34
6/5	23.94	0.00	23.94	8
4/6	10.07	0.01	10.08	6
3/6	2.26	0.41	2.67	7
2/6	0.28	6.38	6.67	15
1/6	0.02	52.93	52.95	21
0/6	0.00	182.96	182.96	212
Total	60.29	242.69	302.99	303

716

717 To address this deficiency, the Springer et al. approach was modified to take into account the
 718 heterogeneity observed in the database. Following the same reasoning used previously in the
 719 application of Approach 3, it was assumed that the irritants are not homogeneous but instead are
 720 a mix of two homogeneous subcategories: strong and weak irritants. Thus, this “modified
 721 Springer method” estimates five parameters rather than three. These parameters are:

722 p_n : the proportion of nonirritants in the database

723 p_{si} : the proportion of strong irritants in the database

724 p_{si+} : the likelihood of a strong irritant producing a positive response

725 pwi+: the likelihood of a weak irritant producing a positive response

726 pn+: the likelihood of a nonirritant producing a positive response

727

728 Application of the modified Springer method to the data is summarized in **Table 14**.

729

730 **Table 14. Results of Analysis Based on a Modified Springer et al. Approach**

Number Irritant (GHS Category 1) Rabbits/Total Rabbits Evaluated	Expected				Observed
	Strong Irritants	Weak Irritants	Nonirritants	Total	
6/6	33.6	0.1	0.0	33.7	34
6/5	7.5	0.9	0.0	8.4	8
4/6	0.7	4.0	0.0	4.7	6
3/6	0.0	9.8	0.0	9.8	7
2/6	0.0	13.5	0.3	13.8	15
1/6	0.0	9.9	11.2	21.1	21
0/6	0.0	3.0	208.5	211.5	212
Total	41.8	41.2	220.0	303.0	303

731

732 The specific parameter estimates are:

733 *Proportion of nonirritants in the database = 72.6%.*

734 *Proportion of strong irritants in the database = 13.8%*

735 *Proportion of weak irritants in the database = 13.6% (100% - 72.6% - 13.8%)*

736 *Probability of a positive response for a strong irritant = 96.4%*

737 *Probability of a positive response for a weak irritant = 35.3%*

738 *Probability of a positive response for a nonirritant = 0.89%*

739

740 Thus, the modified Springer approach estimates that the irritants (i.e., corrosives and severe
741 irritants) are roughly a 50-50 mix of strong and weak irritants. The estimated underclassification
742 rate for the modified Springer approach is essentially zero for strong irritants and $(1 - 0.353)(1 -$
743 $0.353)(1 - 0.353)$ or 27.08% for weak irritants. Taking into account the relative distribution of
744 strong and weak irritants, the overall estimated underclassification rate for all irritants is 13.4%,

745 which agrees closely with our estimate using all the data and not collapsing the classifications.

746

747 Using the modified Springer approach, the estimated overclassification rate for a nonirritant (i.e.,

748 nonsevere irritants and nonirritants) as an irritant (i.e., corrosives and severe irritants) is simply

749 the likelihood of observing one positive response in the three animal sequential test, which,

750 based on the parameter estimates above is $1-(.9911)^3$ or 2.65%, which is slightly higher than the

751 corresponding overclassification estimate of less than 1% based on the previous approach.

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769 **7.0 SUMMARY**

770

771 This report estimates the potential for substances to be misclassified based on evaluating the
772 variability in the observed rabbit responses. The two overall analyses that were conducted were:
773 (1) an assessment of the underclassification likelihood of ocular corrosives/severe irritants being
774 classified as nonsevere irritants/nonirritants; and (2) an assessment of the overclassification
775 likelihood of ocular nonsevere irritants/nonirritants being classified as corrosives/severe irritants.
776 The GHS classification system was used because it has been internationally harmonized through
777 the UN and is expected to be implemented globally in the future. Within the first overall
778 underclassification analysis, additional analyses were conducted to determine the impact of
779 physical form, chemical class, and GHS criteria for classification on the underclassification
780 likelihood of corrosives/severe irritants.

781

782 The estimated underclassification likelihoods obtained using the three different calculation
783 methods that were based on the hazard classification category assigned to a test substances from
784 the results of the *in vivo* rabbit eye test study are summarized in **Table 15**. As discussed
785 previously, Calculation 1 assumes homogeneity of response within an irritancy category. While
786 this simplifies the computation, it ignores the potentially significant contribution of animal
787 variability to the underclassification likelihood. Calculation 2 assumes heterogeneity of response
788 within an irritancy category, which leads to a higher estimated likelihood than determined by
789 Calculation 1. One significant limitation of this approach is that the distribution of observed
790 rabbit responses for each substance is based on a small number of rabbits. Calculation 3
791 attempts to incorporate aspects of both Calculation 1 and 2. Calculation 2 likely provides the
792 most reasonable estimate of the underclassification likelihood for GHS Category 1 substances.

793

794 Using the three calculation methods, the estimated underclassification likelihoods for the total
795 database ranged from 4.30% for Calculation 1 to 11.21% for Calculation 3 to 13.24% for
796 Calculation 2. For all three calculation methods, the greatest contribution to the
797 underclassification likelihood comes from a Category 1 substances being classified as a Category
798 2A (likelihoods range from 3.00% to 7.68% depending on the calculation method).

799

799 **Table 15. Overall Estimated Underclassification Likelihoods for GHS Category 1**
 800 **Substances in the Total Database**

Classification	Calculation 1	Calculation 2	Calculation 3	Springer-Type Analysis
Category 2A	3.00%	7.51%	7.68%	n.a.
Category 2B	0.94%	4.29%	2.81%	n.a.
Nonirritants	0.12%	1.44%	0.44%	n.a.
Variable Responders	0.24%	0.005	0.28%	n.a.
Total	4.30%	13.24%	11.21%	13.4%

801 Abbreviation: n.a. = not applicable.

802 Calculation 1 = homogeneity of response for GHS Category 1 irritants; Calculation 2 = heterogeneity of response
 803 for GHS Category 1 irritants; Calculation 3 = homogeneity of response for three subgroups of GHS Category 1
 804 irritants.

805
 806 One of the factors that impacted the estimated underclassification likelihood was the presence of
 807 substances that could not be classified according to the GHS classification system (i.e., the
 808 Variable Responder Category). In the testing strategy used to mimic a three-animal sequential
 809 test, two different outcomes could lead to an equivocal GHS classification. Under normal testing
 810 circumstances, it is likely that additional animals would be sequentially tested in order to arrive
 811 at a definitive classification. However, because this is a retrospective analysis, testing another
 812 animal is not feasible. Therefore, this category was used to assess the likelihood that more than
 813 three animals would need to be evaluated when testing a severe irritant. As shown in **Table 15**,
 814 this value is small (0.00% to 0.3%).

815
 816 Another factor that likely increased the estimated underclassification likelihood was the
 817 inclusion of substances, based on the animal responses, which were not classified as GHS
 818 Category 1 irritants. These studies represented substances that produced a GHS Category 1
 819 classification at one concentration but in a nonsevere classification when tested at a higher
 820 concentration. These studies were included in the database under the assumption that with
 821 increasing concentration, the same or a more severe response would be expected. It is
 822 recognized that a bell-shaped dose response curve may occur for some substances (e.g.,
 823 polymerization at higher concentrations may lead to decreased bioavailability). However, since
 824 the mode of action of all of these substances was not known, it was decided to reclassify all such
 825 studies as corrosives/severe irritants. By including these studies, greater variability was

826 incorporated into the database which, in turn, increased the underclassification likelihood for all
827 three calculation methods.

828
829 By including 18 substances that were previously not classified or classified as nonsevere irritants
830 as severe irritants, the impact of including variability into the analysis can be demonstrated. As
831 shown in **Table 16**, the inclusion of these substances increased that underclassification
832 likelihood from 11.21% to 16.07%.

833
834 **Table 16. Estimated Underclassification Likelihoods for Three Subgroups of GHS**
835 **Category 1 Substances using Calculation 1 (Assumes Homogeneity of**
836 **Response; including 18 Equivocal Substances)**

Category	Total Database (w/18 substances)	Total Database (w/o 18 substances)
GHS Category 2A	10.58%	7.68%
GHS Category 2B	3.07%	2.81%
GHS Nonirritants	2.02%	0.44%
Variable Responders	0.40%	0.28%
Total	16.07%	11.21%

837
838 It is fully appreciated that using data for substances already classified as corrosive or severely
839 irritating based on a single study only might introduce a bias in the analysis (i.e., result in an
840 underestimate of the underclassification likelihood). However, considering the relatively large
841 numbers of studies involved, the fact that they originate from multiple laboratories across several
842 decades of testing, and that there is a reasonable expectation that some of the substances included
843 in this database represent those that might have been classified as nonsevere irritants in a
844 different study, we consider these estimates a reasonable reflection of the true underclassification
845 potential using the current three animal sequential testing procedure for identifying ocular
846 corrosives and severe irritants, as defined by the GHS hazard classification system (UN 2003).

847
848 Using the modified Springer approach, the overall estimated underclassification rate for all
849 irritants is 13.4% (see **Table 15**). This value agrees closely with the previous estimate using all
850 the data, and not collapsing the classifications. One issue with the Springer-type analysis is how
851 representative the studies where six rabbits were evaluated are of the entire database. In this

852 regard, it is noted that the estimated proportion of irritants in the database using the modified
853 Springer method (13.8+13.6 or 27.4%) is similar to our empirical estimate based on the entire
854 database and our assignment of chemicals to irritation categories (181/792 = 22.9%). Whether or
855 not studies where six animals were tested represented the entire database would be of greater
856 importance if the resulting estimated underclassification likelihoods were not so similar (**Table**
857 **15**).

858
859 Even though both approaches are very similar in the estimated proportion of irritants, it could be
860 argued that our empirical assignment of chemicals to irritant categories very slightly under-
861 estimated the true number of irritants, and if “corrected” by a re-assignment of a few chemicals
862 (which would necessarily be weak irritants) to the irritant database, the underclassification
863 likelihood would have been slightly increased. This hypothetical adjustment would make the
864 underclassification likelihoods from the preceding approach and the modified Springer approach
865 agree even more closely.

866
867 Since two totally different approaches, based on different underlying assumptions and different
868 sets of substances produce very similar estimates of the underclassification rates, it is proposed
869 that the true underclassification likelihoods for the rabbit test is likely to be in the 11-14% range.
870

871 In terms of the analysis of subsets of substances in the total database, an analysis was conducted
872 to estimate the underclassification likelihoods for:

- 873 • GHS Category 1 substances separated into four subcategories based on the GHS
874 criterion used to classify them as ocular corrosives or severe irritants.
- 875 • solids versus liquids/gels, and
- 876 • chemical classes that contained sufficient data for an analysis (i.e., at least 25 rabbits per
877 chemical class).

878
879 When evaluating the criteria for GHS Category 1 classification, the lowest estimated
880 underclassification likelihood (0.00%, for all calculation methods used) was for criterion 3 and
881 the highest estimated underclassification likelihood (8.52% to 17.62%, depending on the
882 calculation method used) was for GHS criterion 1. Caution should be taken when interpreting

883 results for criteria 2 and 3, since they are based on limited datasets. Comparison of the larger
884 datasets, indicate that the difference between criteria 1 and criteria 4 is significant ($p < 0.01$).

885

886 For solids versus liquids/gels, regardless of which of the three calculation methods was used, the
887 estimated underclassification likelihood for liquids/gels was a higher than that calculated for
888 solids. However, these differences were not statistically significant (using the Mann-Whitney U
889 test).

890

891 Because the small numbers of studies per chemical class make it difficult to assess whether or
892 not heterogeneity is present within a given chemical class, a single homogeneous calculation
893 (Calculation 1) was conducted for the 12 chemical classes judged to have sufficient data (≥ 25
894 rabbits). The estimated underclassification likelihoods for six of the 12 chemical classes
895 analyzed were similar to each other and within the range of underclassification likelihoods
896 estimated for the total database; these likelihoods ranged from 4.68% for formulations to 10.89%
897 for alcohols. Among the remaining six chemical classes analyzed, the estimated
898 underclassification likelihoods for five classes were relatively low (0.00% for onium compounds
899 and phenols to 2.51% for heterocyclics) and the estimated underclassification likelihood for
900 carboxylic acids (16.64%) was relatively high. The low estimated underclassification
901 likelihoods suggests that the rabbit ocular response to GHS Category 1 substances in these
902 chemical classes are relatively consistent, while the high estimated underclassification likelihood
903 for carboxylic acids suggests that the rabbit ocular responses to GHS Category 1 substances in
904 this chemical class are more likely to be variable.

905

906 The estimated overclassification likelihoods for nonsevere irritants and nonirritant substances as
907 Category 1 substances are summarized in **Table 17**. As in **Table 15**, Calculation 1 assumes
908 homogeneity of response while Calculation 2 assumes heterogeneity of response.

909

910 As is seen in **Table 17**, the likelihood of overclassification decreases as the irritancy of the
911 substances decreases (i.e., 7.70% for Category 2A substances and 0.00% for nonirritant
912 substances). This is not unexpected considering the greatest variability in responses and

913

913 **Table 17. Overall Estimated Overclassification Likelihoods for GHS Category 2A and**
 914 **2B Irritants and Nonirritant Substances**

Classification	GHS Category 2A		GHS Category 2B		Nonirritants		Springer-Type Analysis
	Calc. 1	Calc. 2	Calc. 1	Calc. 2	Calc. 1	Calc. 2	
Category 1	7.70%	6.67%	1.28%	0.82%	0.00%	0.00%	n.a.
Category 2A	<i>83.70%</i>	<i>75.41%</i>	5.21%	4.08%	0.08%	0.47%	n.a.
Category 2B	5.95%	12.39%	<i>85.53%</i>	<i>81.60%</i>	0.15%	1.45%	n.a.
Nonirritants	1.57%	4.90%	7.53%	13.49%	<i>99.77%</i>	<i>98.08%</i>	n.a.
Variable Reponders	1.08%	0.63%	0.45%	0.00%	0.00%	0.00%	n.a.
Overclassification as a Category 1 Substance Likelihood	7.70%	6.67%	1.28%	0.82%	0.00%	0.00%	2.65%

915 Abbreviation: Calc. = Calculation; n.a. = not applicable.

916 Calculation 1 = homogeneity of response for GHS Category 1 irritants; Calculation 2 = heterogeneity of response
 917 for GHS Category 1 irritants.

918 Italicized text represents the likelihood of correct classification for the irritancy category noted.

919

920 classification are typically observed around the transition between irritancy categories (i.e.,
 921 Category 1 and 2A). Additionally, when the number of substances within these groups
 922 compared to the entire database (prevalence) are incorporated into the evaluation it is estimated
 923 that the overall likelihood of overclassifying a GHS Category 2A, 2B or nonirritant as a Category
 924 1 substance is <1%. Using the modified Springer approach, the overall estimated
 925 overclassification rate for all non-irritants is 2.65% (see **Table 17**). This value agrees with the
 926 previous estimate using all the data, and not collapsing the classifications.

927

928 These results indicate that the *in vivo* rabbit eye test method is repeatable at the extreme irritancy
 929 range (i.e., ocular corrosive or severe irritants) with an underclassification rate between 11% and
 930 14%; the greatest contribution to the underclassification rate occurs by Category 1 substances
 931 being underclassified as Category 2A irritants (3.00% to 7.68%). While the goal of future
 932 studies should focus on reducing the number of rabbits tested to assess ocular irritancy, and
 933 eventually replacing the *in vivo* rabbit eye test, any proposed *in vitro* ocular test method should
 934 strive to ensure that it meets or improves upon the performance of the *in vivo* rabbit eye test in
 935 identifying ocular corrosives and severe irritants.

936 **8.0 REFERENCES**

- 937
- 938 Barkman R, Germanis M, Karpe G, Malmborg AS. 1969. Preservatives in drops. *Acta*
939 *Ophthalmol.* 47:461-475.
- 940
- 941 Butscher P. 1953. Beitrag zur therapie von augenschadigunen durch thioglykolsaur bei der
942 herstellung der sogenannten kaltwelle. *Klin Monatsbl Augenheilkd.* 122:349-350.
- 943
- 944 Calabrese EJ. 1983. Dermatotoxicity: Predictive Models. *In Principles of animal extrapolation.*
945 CRC Press, 391-404.
- 946
- 947 Carpenter CP, Smyth HF. 1946. Chemical burns of the rabbit cornea. *Am J Ophthalmol.* 29:60-73.
- 948
- 949 Draize J, Woodard G, Calvery H. 1944. Methods for the study of irritation and toxicity of
950 substances applied topically to the skin and mucous membranes. *J Pharm Exp Ther* 82:377-390.
- 951
- 952 EPA. 1998. Health Effects Test Guideline, OPPTS 870.2400 Acute Eye Irritation. EPA 712-C-
953 98-195. Washington, DC: U.S. Environmental Protection Agency.
- 954
- 955 EPA. 2003a. Good Laboratory Practice Standards. Toxic Substances Control Act. 40 CFR
956 792.
- 957
- 958 EPA. 2003b. Good Laboratory Practice Standards. Federal Insecticide, Fungicide, and
959 Rodenticide Act. 40 CFR 160.
- 960
- 961 Estable JL. 1948. The ocular effect of several irritant drugs applied directly to the conjunctiva.
962 *Am J Ophthalmol.* 31:837-844.
- 963
- 964 FDA. 2003. Good laboratory practice for nonclinical laboratory studies. 21 CFR 58.
- 965
- 966 FHSA. 1964. Federal Hazards Substances Act of 1964. Public Law 86-613.

967
968 Gartner S. 1944. Blood vessels of the conjunctiva. Arch Ophthalmol. 36:464-471.
969
970 Grant MW. 1974. Toxicology of the Eye, Thomas, Springfield, 2nd edition.
971
972 Leopold IH. (1945) Local toxic effect of detergents on ocular structures. Arch Ophthalmol. 34:99-
973 102.
974
975 Lewin L, Guillery H. 1913. Die Wirkungen von Arzneimitteln und Giften auf das Auge.
976 Hirschwald, Berlin. 2nd edition.
977
978 Marsh RJ, Maurice DM. 1971. The influence of non-ionic detergents and other surfactants on
979 human corneal permeability. Exp Eye Res. 11:43-48.
980
981 McDonald TO, Seabaugh V, Shaddock JA, Edelhauser HF. 1987. Eye irritation. *In*
982 Dermatotoxicology. (Marzulli FN, Maibach HI, eds). Hemisphere Publishing Corporation,
983 Washington, 3rd edition, 641-696.
984
985 McLaughlin RS. 1946. Chemical burns of the human cornea. Am J Ophthalmol. 29:1355-1362.
986
987 Nakano M. 1958. Effect of various antifungal preparations on the conjunctiva and cornea of
988 rabbits. Yakuzaigaku. 18:94-99.
989
990 NIOSH. 2004. Work-Related Injury Statistics Query System. Available:
991 <http://www2a.cdc.gov/risqs/> [accessed 26 October 2004].
992
993 OECD. 2002. Guideline for testing of chemicals revised guideline 405: Acute Eye
994 Irritation/Corrosion. Available: <http://www.oecd.org>. [accessed 26 August 2004].
995

- 996 OECD. 1998. OECD Series on principles of good laboratory practice and compliance monitoring
997 number 1: OECD principles on good laboratory practice. (as revised in 1997).
998 ENV/MC/CHEM(98)17. Paris: OECD.
999
- 1000 Springer JA, Chambers WA, Green S, Gupta KC, Hill RN, Hurley PM, Lambert LA, Lee CC,
1001 Lee JK, Liu PT, Lowther DK, Roberts CD, Seabaugh VM, Wilcox NL. 1993. Number of animals
1002 for sequential testing. Food Chem Toxicol. 31:105-109.
1003
- 1004 Suker GF. 1913. Injury to cornea from oxalic acid. Ophthalmol Rec. 23:40-47.
1005
- 1006 UN. 2003. Globally Harmonised System of Classification and Labeling of Chemicals (GHS).
1007 New York & Geneva: United Nations Publications.
1008

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APPENDIX A

OCULAR IRRITANCY DATABASE USED FOR ANALYSIS

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	A	B	D	E	F	G	H	I	J	K	L	M
	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
1												
2	Sodium hydroxide	1310-73-2	ECETOC	10%	Cat 1(pos1/3)						Category 1	4
3	Benzalkonium chloride	8001-54-5	ECETOC	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
4	Cetylpyridinium bromide	140-72-7	ECETOC	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos2/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
5	Trichloroacetic acid	76-03-9	ECETOC	30%	Cat 1(pos1/3)						Category 1	4
6	Sodium undecylenate solution	3398-33-2	ECETOC	33.2%	Cat 1(pos1/3)						Category 1	4
7	Potassium laurate	10124-65-9	NIHS	10%	Cat 1(pos1/3)	nonirritant	nonirritant				Category 1	4
8	Butanol	71-36-3	NIHS	10%	nonirritant	Cat2B	Cat 1(pos1/3)				Category 1	4
9	Sodium lauryl sulfate	151-21-3	NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	nonirritant				Category 1	4
10	Benzethonium chloride	121-54-0	Laboratoire National de la Sante	10%	Cat 1(pos2/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
11	Sodium lauryl sulfate	151-21-3	NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
12	Stearyltrimethylammonium chloride	15461-40-2	NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
13	Domiphen bromide	538-71-6	NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
14	Hexadecyltrimethylammonium Bromide (CTAB)	57-09-0	Laboratoire National de la Sante	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
15	Cetyltrimethylammonium bromide	57-09-0	NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
16	Acetic acid	64-19-7	NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
17	22-L		NIHS	10%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
18	1,2,4-Triazole, sodium Salt	41253-21-8	ECETOC	100%	Cat 1(pos1/3)						Category 1	4
19	5-Chloro-N-[4-methoxy-3-(1-piperazinyl)phenyl]-3-methylbenzo[B]thiophene-2-sulfonamide monohydrochloride		GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	4
20	Methylthioglycolate	2365-48-2	ECETOC	100%	Cat2B	Cat2B	Cat 1(pos1/3)				Category 1	4
21	Bis-(3-aminopropyl) tetramethyl disiloxane	2469-55-8	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)					Category 1	4
22	Cyclohexyl isocyanate	3173-53-3	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)					Category 1	4
23	22-O		NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	nonirritant				Category 1	4
24	Methoxyethyl acrylate	3121-61-7	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2B				Category 1	4
25	Tetrahydrofuran	109-99-9	TSCA	100%	Cat2B	Cat2B	Cat2B	Cat 1(pos1/3)	Cat2B	Cat 1(pos1/3)	Category 1	4
26	Sulfonic N-102	9016-45-9	TSCA	100%	Cat 1(pos1/3)	Cat2A	nonirritant	Cat 1(pos1/3)	Cat2A	Cat2A	Category 1	4
27	Captan 90-concentrate (solid)	133-06-2	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
28	Imidazole	288-32-4	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
29	Lactic acid	50-21-5	NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
30	Diethylaminopropionitrile	5351-04-2	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
31	Carboxylic acid amides		ExxonMobil Biomedical Sciences	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
32	22-C		NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
33	22-D		NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
34	22-G		NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
35	22-I		NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
36	22-N		NIHS	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
37	Degreaser (sample 16)		S.C. Johnson & Son, Inc.	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2A	Category 1	4
38	n-Octylamine	111-86-4	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)			Category 1	4
39	1,3-Diiminobenz (f)-isoindoline	65558-69-2	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)			Category 1	4
40	Sodium perborate tetrahydrate	10486-00-7	ECETOC	100%	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Category 1	4
41	Glass cleaner (sample 19)		S.C. Johnson & Son, Inc.	100%	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
42	Diethylethanolamine	100-37-8	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
43	Amway automatic dishwashing compound, standard formula		Access Business Group	100%	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
44	Amway chlorine bleach		Access Business Group	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Category 1	4

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
45	Surfonic HDL-1	9016-45-9	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos2/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
46	2-Benzyl-4-chlorophenol	000120321	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
47	N,N,N',N'-Tetramethylhexanediamine	111-18-2	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
48	Antimony oxide	1309-64-4	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
49	Phosphorodichloridic acid, ethyl ester	1498-51-7	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
50	gamma-Aminopropyltriethoxy silane	919-30-2	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
51	Amway automatic dishwashing compound for soft water		Access Business Group	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
52	Amway concrete floor cleaner		Access Business Group	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
53	Amway Pursue disinfectant cleaner		Access Business Group	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
54	Ethylhexyl acid phosphate ester		ExxonMobil Biomedical Sciences	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
55	PROD-00153		FDA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
56	PROD-00157		FDA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
57	Floor stripper (sample 18)		S.C. Johnson & Son, Inc.	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
58	Metal cleaner (sample 20)		S.C. Johnson & Son, Inc.	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
59	Dibenzoyl-L-tartaric acid	2743-38-6	Laboratoire National de la Sante	20%	Cat2B	Cat 1(pos1/3)	Cat2A				Category 1	4
60	Promethazine hydrochloride	58-33-3	Laboratoire National de la Sante	20%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
61	Diethylethanolamine	100-37-8	TSCA	25%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
62	Diethylethanolamine	100-37-8	TSCA	50%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
63	4-Tert-butylcatechol	98-29-3	TSCA	85%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
64	Acid blue 40	6424-85-7	TSCA	n.a.	Cat 1(pos1/3)	nonirritant	Cat2A	Cat2A	Cat 1(pos1/3)	Cat2A	Category 1	4
65	4-Amino-5-methoxy-2-methylbenzene-sulphonic acid	6471-78-9	ZEBET	n.p.	Cat 1(pos1/3)						Category 1	4
66	Sodium hydrogen sulfate	7681-38-1	ZEBET	n.p.	Cat 1(pos1/3)						Category 1	4
67	Methylpentynol	77-75-8	ZEBET	n.p.	Cat 1(pos1/3)						Category 1	4
68	B-Resorcylic acid	89-86-1	ZEBET	n.p.	Cat 1(pos1/3)						Category 1	4
69	4-Chloro-methanilic acid	98-36-2	ZEBET	n.p.	Cat 1(pos1/3)						Category 1	4
70	Diphocars		ZEBET	n.p.	Cat 1(pos1/3)						Category 1	4
71	n-Butanol	71-36-3	ZEBET	n.p.	Cat 1(pos1/3)	nonirritant	Cat2A				Category 1	4
72	Polyhexamethylene guanidine	31961-54-3	ZEBET	n.p.	Cat2A	Cat2A	Cat 1(pos1/3)				Category 1	4
73	Sodium disilicate	13870-28-5	ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
74	2-Hydroxyisobutyric acid	594-61-6	ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
75	N-(2-Methylphenyl)-imidodicarbonimidic diamide	93-69-6	ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
76	PROD-00138		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	4
77	Trichloroacetyl chloride	76-02-8	TSCA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)			Category 1	4
78	PROD-00062		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	nonirritant	Category 1	4
79	PROD-00072		FDA	n.p.	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Category 1	4
80	Benzenesulfonyl chloride	98-0909	TSCA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos2/3)	Cat 1(pos1/3)	Category 1	4
81	Antimony trioxide	1309-64-4	TSCA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
82	Aluminum chloride	16603-84-2	TSCA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
83	PROD-00068		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
84	PROD-00074		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
85	PROD-00078		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
86	PROD-00098		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
87	PROD-00114		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
88	Hydroxyethyl acrylate	818-1-1	TSCA	Undiluted	Cat 1(pos1/3)	Cat 1(pos2/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
89	T-1585		TSCA	Undiluted	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	4
90	Promethazine hydrochloride	58-33-3	ECETOC	100%	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)				Category 1	3

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
91	Quinacrine	69-05-6	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	3
92	PROD-00147		FDA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos2/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	3
93	Benzalkonium chloride	8001-54-5	ECETOC	5%	Cat 1(pos1/3)	Cat 1(pos2/3)	Cat 1(pos1/3)	Cat 1(pos2/3)			Category 1	2
94	Dibenzoyl-L-tartaric acid	2743-38-6	ECETOC	100%	Cat2B	Cat 1(pos2/3)	Cat 1(pos2/3)				Category 1	2
95	4-(1,1,3,3-Tetramethylbutyl)phenol	140-66-9	TSCA	100%	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Category 1	2
96	p-Octylphenol	140-66-9	TSCA	100%	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Category 1	2
97	Cyclohexanol	108-93-0	ECETOC	100%	Cat 1(pos1/3)	Cat2A	Cat 1(pos2/3)	Cat 1(pos2/3)			Category 1	2
98	2-Hydroxyisobutyric acid ethylester	80-55-7	ZEBET	n.p.	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)				Category 1	2
99	PROD-00057		FDA	n.p.	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)		Category 1	2
100	PROD-00099		FDA	n.p.	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Cat 1(pos2/3)	Category 1	2
101	2,5-Dimethylhexanediol	110-03-2	ZEBET	0.1%	Cat 1(pos1/3)	Cat2A	Cat2A				Category 1	1
102	Calcium sulfhydrate solution	12133-28-7	ECETOC	20%	Cat 1(pos1/3)						Category 1	1
103	22-O		NIHS	10%	Cat 1(pos1/3)	Cat2A	Cat2B				Category 1	1
104	PROD-00045		FDA	100%	Cat 1(pos1/3)	Cat2B	Cat2B				Category 1	1
105	PROD-00047		FDA	100%	Cat2B	Cat 1(pos1/3)	Cat2B				Category 1	1
106	2,5-Dimethylhexanediol	110-03-2	ECETOC	100%	Cat 1(pos1/3)	Cat2A	Cat2A				Category 1	1
107	Soap from 80/20-tallow/coconut oil (solid)	No single CAS No.	ECETOC	100%	Cat2A	Cat2A	Cat 1(pos1/3)				Category 1	1
108	PROD-00044		FDA	100%	Cat2A	Cat2A	Cat 1(pos1/3)				Category 1	1
109	Soap from 80/20 palm oil/coconut oil (solid)	No single CAS No.	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A				Category 1	1
110	Vehicle control (test material #16)		S. C. Johnson & Son, Inc.	100%	Cat2A	nonirritant	nonirritant	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
111	gamma-Aminopropyltriethoxy silane	919-30-2	TSCA	100%	Cat 1(pos1/3)	Cat2B	Cat2A	Cat2B	Cat 1(pos1/3)	Cat2A	Category 1	1
112	PROD-00141		FDA	100%	Cat2A	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2B	Category 1	1
113	3,4-Dichlorophenyl isocyanate	102-36-3	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
114	Butyl cellosolve	111-76-2	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
115	Lauric acid	143-07-7	ECETOC	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
116	Protectol PP	80-54-6	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
117	AU-358 LTV	n.a.	TSCA 8(e) Website	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
118	PROD-00046		FDA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
119	PROD-00048		FDA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
120	1-Naphthalene acetic acid, sodium salt (solid)	61-31-4	ECETOC	100%	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Category 1	1
121	Amway SA8 laundry liquid		Access Business Group	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)		Category 1	1
122	Insect repellent benchmark (Group 2)		S. C. Johnson & Son, Inc.	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	nonirritant	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
123	2-Benzyl-4-chlorophenol	000120321	TSCA	100%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
124	Quinacrine	69-05-6	Laboratoire National de la Sante	20%	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
125	TNO-35	616-09-1	TNO-Prinsen	n.p.	Cat 1(pos1/3)						Category 1	1
126	Silane A-1102		TSCA	n.p.	Cat 1(pos1/3)						Category 1	1
127	Olak		ZEBET	n.p.	Cat 1(pos1/3)						Category 1	1
128	3,6-Dimethyloctanol	151-19-9	ZEBET	n.p.	Cat2B	Cat 1(pos1/3)	Cat2B				Category 1	1
129	TNO-85		TNO-Prinsen	n.p.	Cat 1(pos1/3)	Cat2B	Cat2B				Category 1	1
130	iso-Butanol	78-83-1	ZEBET	n.p.	Cat 1(pos1/3)	Cat2A	Cat2A				Category 1	1
131	7-Acetoxyheptanal		ZEBET	n.p.	Cat2A	Cat2A	Cat 1(pos1/3)				Category 1	1
132	PROD-00058		FDA	n.p.	nonirritant	Cat 1(pos1/3)	nonirritant	Cat 1(pos1/3)	nonirritant	nonirritant	Category 1	1
133	PROD-00188		FDA	n.p.	Cat2A	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2B	Cat2A	Category 1	1
134	alpha-ketoglutaric acid	328-50-7	ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos2/3)				Category 1	1
135	1-Chloroctan-8-ol		ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
136	C12/C14-Glucoside		ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
137	Hydo 98		ZEBET	n.p.	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)			Category 1	1
138	Sept		ZEBET	n.p.	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)			Category 1	1
139	PROD-00189		FDA	n.p.	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2A	Cat 1(pos1/3)	Category 1	1
140	Tocla		ZEBET	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)			Category 1	1
141	PROD-00102		FDA	n.p.	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Category 1	1
142	PROD-00182		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
143	PROD-00081		FDA	n.p.	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
144	PROD-00110		FDA	n.p.	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
145	HZN-1		CTFA	Undiluted	Cat2B	Cat2B	Cat 1(pos1/3)				Category 1	1
146	HZW-1		CTFA	Undiluted	Cat2A	Cat 1(pos1/3)	Cat2B				Category 1	1
147	HZR-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2B				Category 1	1
148	HZV-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2B				Category 1	1
149	HZC-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat2A	Cat 1(pos1/3)				Category 1	1
150	HZA-1		CTFA	Undiluted	Cat2B	Cat 1(pos1/3)	Cat2B	Cat2A	Cat 1(pos1/3)	Cat2A	Category 1	1
151	HZF-1		CTFA	Undiluted	Cat2A	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat2B	Category 1	1
152	HZY-1		CTFA	Undiluted	Cat2B	Cat2A	Cat2B	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
153	HZB-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
154	HZG-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
155	HZM-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)				Category 1	1
156	HZL-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat2B	Cat2B	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
157	HZI-1		CTFA	Undiluted	Cat2B	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2B	Cat 1(pos1/3)	Category 1	1
158	HZS-1		CTFA	Undiluted	Cat2A	Cat 1(pos1/3)	Cat2B	Cat 1(pos1/3)	Cat2B	Cat 1(pos1/3)	Category 1	1
159	HZX-1		CTFA	Undiluted	Cat 1(pos1/3)	Cat2B	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Category 1	1
160	HZR		CTFA	Undiluted	Cat 1(pos1/3)	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Category 1	1
161	HZK-1		CTFA	Undiluted	Cat2B	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat 1(pos1/3)	Category 1	1
162	Triton X-100	9002-93-1	ECETOC	10%	Cat 1(pos1/3)	Cat2A	Cat 1(pos2/3)	Cat2A	Cat2A	Cat 1(pos2/3)	Category 1	0
163	Sodium lauryl sulfate	151-21-3	ECETOC	15%	Cat2A	Cat2B	Cat 1(pos2/3)	Cat2B	Cat 1(pos1/3)	Cat2A	Category 1	0
164	Sodium lauryl sulfate	151-21-3	ECETOC	30%	Cat2B	Cat2A	Cat2A	Cat2A	Cat 1(pos2/3)	Cat2B	Category 1	0
165	Mebrophen hydramine HCl	13977-28-1	GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
166	tetra-N-Octylammonium bromide	14866-33-2	GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
167	Isopropyl dicyanamide	35695-36-4	GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
168	1-(3,4-Dichlorophenyl)-5-isopropylbiguanide HCl	537-21-3	GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
169	2-Nitro-4-thiocyananiline	54029-45-7	GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
170	Iodine chloride with pyridine (1:1)	6443-90-9	GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
171	sodium dicyanamide		GlaxoSmithKline	100%	Cat 1(pos1/3)						Category 1	0
172	2-Methylbutyric acid	116-53-0	TSCA	100%	Cat2B	Cat 1(pos2/3)	Cat2B	Cat2B	Cat2B	Cat 1(pos1/3)	Category 1	0
173	1-Naphthalene acetic acid (solid)	86-87-3	ECETOC	100%	Cat2B	Cat2A	Cat2A	Cat 1(pos2/3)	Cat2A	Cat 1(pos1/3)	Category 1	0
174	PROD-00159		FDA	100%	Cat2A	Cat 1(pos1/3)	Cat 1(pos1/3)	Cat2A	Cat2A	nonirritant	Category 1	0
175	TNO-92		TNO-Prinsen	n.p.	Cat 1(pos1/3)						Category 1	0
176	TNO-93		TNO-Prinsen	n.p.	Cat 1(pos1/3)						Category 1	0
177	TNO-28		TNO-Prinsen	n.p.	nonirritant	nonirritant	Cat 1(pos1/3)				Category 1	0
178	Sodium lauryl sulfate	151-21-3	NIHS	10%	Cat2B	Cat2A	nonirritant				Category 1	0
179	n-Butanol	71-36-3	ECETOC	100%	Cat2B	Cat2A	Cat2A	Cat2A			Category 1	0
180	Pyridine	110-86-1	Laboratoire National de la Sante	100%	Cat 1(pos2/3)	Cat2A	Cat2A				Category 1	0
181	iso-Butanol	78-83-1	ECETOC	100%	Cat2A	Cat2A	Cat 1(pos2/3)	Cat2A			Category 1	0
182	Diethylethanolamine	100-37-8	TSCA	50%	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2A	Cat2A	Cat2A	Category 1	0
183	Cetylpyridinium bromide	140-72-7	ECETOC	1%	Cat2A	Cat2A	Cat2A	Cat 1(pos2/3)	Cat2A	Cat2A	Category 2A	0
184	Benzalkonium chloride	8001-54-5	ECETOC	1%	Cat2A	nonirritant	Cat2A	Cat 1(pos1/3)			Category 2A	0
185	Triton X-100	9002-93-1	ECETOC	5%	Cat2A	Cat2B	Cat2B	Cat2B	Cat2B	Cat2A	Category 2A	0
186	Igepon AC-78	58969-27-0	ECETOC	5%	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	0
187	Igepon AC-78	58969-27-0	ECETOC	10%	Cat2A	Cat2A	Cat2A	Cat2B	Cat2A	Cat 1(pos1/3)	Category 2A	0
188	Deoxycholic Acid Sodium Salt	302-95-4	Laboratoire National de la Sante	10%	Cat2B	Cat2A	Cat2A				Category 2A	0
189	Octanol	111-87-5	Laboratoire National de la Sante	100%	Cat2B	Cat2B	Cat2B				Category 2A	0

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
190	Ethanol	64-17-5	Laboratoire National de la Sante	100%	nonirritant	Cat2B	Cat2A				Category 2A	
191	PROD-00161		FDA	100%	Cat2A	Cat2B	nonirritant				Category 2A	
192	Ethanol	64-17-5	ECETOC	100%	Cat2A	Cat2A	nonirritant				Category 2A	
193	Methyl cyanoacetate	105-34-0	ECETOC	100%	Cat2A	Cat2A	Cat2B				Category 2A	
194	n-Octanol	111-87-5	ECETOC	100%	Cat2B	Cat2A	Cat2A				Category 2A	
195	g-Butyrolactone	96-48-0	ECETOC	100%	Cat2B	Cat2A	Cat2A				Category 2A	
196	Butyrolactone	96-48-0	Laboratoire National de la Sante	100%	Cat2A	Cat2B	Cat2A				Category 2A	
197	o-Toluene diamine, propoxylated, ethoxylated	unknown	ISOPA	100%	Cat2A	Cat2B	Cat2A				Category 2A	
198	PROD-00053		FDA	100%	Cat2A	Cat2A	Cat2B				Category 2A	
199	gamma-(Aminocarbonyl)-N-methyl-N-bis(1-methylethyl)-gamma-phenyl-, iodide		GlaxoSmithKline	100%	Cat2A	Cat2B	Cat2A				Category 2A	
200	Allyl Alcohol	107-18-6	Laboratoire National de la Sante	100%	Cat2A	Cat2A	Cat2A				Category 2A	
201	Dibenzyl phosphate	1623-08-1	ECETOC	100%	Cat2A	Cat2A	Cat2A				Category 2A	
202	Polyether E810	25214-63-5	ISOPA	100%	Cat2A	Cat2A	Cat2A				Category 2A	
203	PROD-00052		FDA	100%	Cat2A	Cat2A	Cat2A				Category 2A	
204	PROD-00054		FDA	100%	Cat2A	Cat2A	Cat2A				Category 2A	
205	2-Ethyl-1-hexanol	104-76-7	ECETOC	100%	Cat2A	Cat2B	Cat2A	Cat2A			Category 2A	
206	Amway Redu dye stain remover		Access Business Group	100%	nonirritant	Cat2A	Cat2A	Cat2B	Cat2B	Cat2A	Category 2A	
207	Acetone	67-64-1	ECETOC	100%	Cat2A	Cat2A	Cat2A	Cat2A			Category 2A	
208	Benzotrichloride	98-07-7	TSCA	100%	nonirritant	nonirritant	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
209	Insect repellent formulation 1-2		S. C. Johnson & Son, Inc.	100%	nonirritant	Cat2B	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
210	Insect repellent formulation 1-3		S. C. Johnson & Son, Inc.	100%	Cat2A	Cat2B	Cat2A	Cat2B	Cat2A	Cat2A	Category 2A	
211	PROD-00144		FDA	100%	Cat2B	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
212	2,6-Dichlorobenzoyl chloride	4659-45-4	ECETOC	100%	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
213	PROD-00148		FDA	100%	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
214	4-Carboxybenzaldehyde	619-66-9	ECETOC	100%	Cat2A	Cat2B	Cat 1(pos2/3)				Category 2A	
215	PROD-00166		FDA	100%	Cat2A	Cat2B	Cat 1(pos2/3)				Category 2A	
216	Iso-Propanol	67-63-0	ECETOC	100%	Cat2A	Cat2A	nonirritant	Cat 1(pos2/3)			Category 2A	
217	Methyl ethyl ketone	78-93-3	ECETOC	100%	nonirritant	Cat2A	Cat2A	Cat 1(pos2/3)			Category 2A	
218	n-Hexanol	111-27-3	ECETOC	100%	Cat 1(pos2/3)	Cat2A	Cat2A	Cat2A			Category 2A	
219	Methyl acetate	79-20-9	ECETOC	100%	Cat2A	Cat2A	Cat 1(pos2/3)	Cat2A			Category 2A	
220	PROD-00155		FDA	100%	Cat 1(pos1/3)	Cat2A	Cat2A	Cat2A	Cat2A	nonirritant	Category 2A	
221	PROD-00158		FDA	100%	Cat2B	Cat 1(pos1/3)	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
222	Ethanol	64-17-5	S. C. Johnson & Son, Inc.	100%	Cat2A	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2A	Cat2A	Category 2A	
223	Insect repellent benchmark (Group 1)		S. C. Johnson & Son, Inc.	100%	Cat2A	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2A	Cat2A	Category 2A	
224	Insect repellent formulation 1-1		S. C. Johnson & Son, Inc.	100%	Cat2A	Cat2A	Cat2A	Cat 1(pos1/3)	Cat2A	Cat2A	Category 2A	
225	TNO-29		TNO-Prinsen	n.p.	nonirritant	Cat2B	Cat2A				Category 2A	
226	TNO-55		TNO-Prinsen	n.p.	Cat2A	nonirritant	Cat2A				Category 2A	
227	Wessalith Slurry		ZEBET	n.p.	nonirritant	Cat2A	Cat2A				Category 2A	
228	PROD-00151		FDA	n.p.	Cat2B	Cat2A	Cat2A				Category 2A	
229	TNO-68		TNO-Prinsen	n.p.	Cat2A	Cat2A	Cat2B				Category 2A	
230	PROD-00086 BASE-00088		FDA	n.p.	Cat2A	Cat2B	Cat2B	Cat2A	nonirritant	nonirritant	Category 2A	
231	PROD-00122		FDA	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	
232	TNO-2		TNO-Prinsen	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	
233	TNO-4		TNO-Prinsen	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	
234	TNO-52		TNO-Prinsen	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	
235	TNO-70		TNO-Prinsen	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	
236	TNO-73		TNO-Prinsen	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
237	Kuppler 43		ZEBET	n.p.	Cat2A	Cat2A	Cat2A				Category 2A	
238	PROD-00067		FDA	n.p.	Cat2B	Cat2B	nonirritant	Cat2A	Cat2A	Cat2A	Category 2A	
239	PROD-00137		FDA	n.p.	Cat2A	Cat2A	Cat2B	Cat2A	nonirritant	Cat2A	Category 2A	
240	PROD-00152		FDA	n.p.	Cat2B	Cat2A	Cat2B	Cat2A	Cat2A	Cat2A	Category 2A	
241	PROD-00087		FDA	n.p.	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Cat2A	Category 2A	
242	PROD-00181		FDA	n.p.	Cat2A	nonirritant	Cat2A	Cat2A	Cat 1(pos1/3)	Cat2A	Category 2A	
243	Sodium hydroxide	1310-73-2	ECETOC	1%	Cat2B	Cat2B	Cat2B	Cat2A			Category 2B	
244	Hexyl cinnamic aldehyde	101-86-0	TSCA	12.5%	nonirritant	nonirritant	nonirritant				Category 2B	
245	Hexyl cinnamic aldehyde	101-86-0	TSCA	12.5%	Cat2B	nonirritant	Cat2B				Category 2B	
246	Glycolic acid	79-14-1	NIHS	10%	Cat2B	Cat2B	nonirritant				Category 2B	
247	Monoethanolamine		NIHS	10%	Cat2B	Cat2B	Cat2B				Category 2B	
248	N-Lauroylsarcosine sodium salt	137-16-6	Laboratoire National de la Sante	10%	Cat2A	Cat2B	Cat2B				Category 2B	
249	2-Methyl-1-pentanol	105-30-6	ECETOC	100%	nonirritant	Cat2B	Cat2B				Category 2B	
250	3-Chloropropionitrile	542-76-7	ECETOC	100%	Cat2B	Cat2B	nonirritant				Category 2B	
251	Ethyl-2-methyl acetoacetate	609-14-3	ECETOC	100%	nonirritant	Cat2B	Cat2B				Category 2B	
252	2,6-Dichloro-5-fluoro-beta-oxo-3-pyridinepropanoate	96568-04-6	GlaxoSmithKline	100%	nonirritant	Cat2B	Cat2B				Category 2B	
253	Lupranol 3402	25214-63-5	ISOPA	100%	Cat2B	Cat2B	Cat2B				Category 2B	
254	PROD-00049		FDA	100%	Cat2B	Cat2B	Cat2B				Category 2B	
255	PROD-00050		FDA	100%	Cat2B	Cat2B	Cat2B				Category 2B	
256	PROD-00051		FDA	100%	Cat2B	Cat2B	Cat2B				Category 2B	
257	di-Isopropyl aminoethylidiphenyl acetamide		GlaxoSmithKline	100%	Cat2B	Cat2B	Cat2B				Category 2B	
258	Butyl Dipropasol Solvent	29911-27-1	TSCA	100%	nonirritant	nonirritant	Cat2B	Cat2B	Cat2B	Cat2B	Category 2B	
259	6-Methyl Purine	2004-03-7	TSCA	100%	Cat2B	Cat2B	Cat2B	Cat2B	Cat2B	Cat2B	Category 2B	
260	3,3-Dithiopropionic Acid	1119-62-6	ECETOC	100%	Cat2A	Cat2B	Cat2B				Category 2B	
261	Ammonium nitrate	6484-52-2	ECETOC	100%	Cat2A	Cat2B	Cat2B				Category 2B	
262	Cyclopentanol	96-41-3	ECETOC	100%	Cat2A	Cat2B	Cat2B				Category 2B	
263	Propasol Solvent P	1569-01-3	TSCA	100%	nonirritant	Cat2B	Cat2B	Cat2B	Cat2A	Cat2B	Category 2B	
264	Aryl phosphonates		ExxonMobil Biomedical Sciences	100%	Cat2B	Cat 1(pos2/3)	Cat2B	Cat2B	Cat2B	Cat2B	Category 2B	
265	Chlorhexidine gluconate	18472-51-0	NIHS	20%	Cat2B	Cat2B	Cat2A				Category 2B	
266	HZW-1		CTFA	25%	nonirritant	Cat2B	nonirritant	Cat2B	Cat2B	Cat2B	Category 2B	
267	Sodium N-lauroyl sarcosinate	137-16-6	NIHS	30%	nonirritant	Cat2B	nonirritant				Category 2B	
268	Alcohol SDA 39C		TSCA	79%	Cat2B	Cat2B	Cat2B				Category 2B	
269	2-Methyl-2-butanone-(4-sulfonamidophenyl) hydrazone		TSCA 8(e) Website	n.a.	Cat2B	Cat2B	Cat2B				Category 2B	
270	n-Butanal	123-72-8	ZEBET	n.p.	Cat2B	Cat2B	nonirritant				Category 2B	
271	Isopropyl acetoacetate	542-08-5	ZEBET	n.p.	nonirritant	Cat2B	Cat2B				Category 2B	
272	Acetoacetic acid glycolester	5459-04-1	ZEBET	n.p.	Cat2B	Cat2B	nonirritant				Category 2B	
273	Isobutanol	78-84-2	ZEBET	n.p.	Cat2B	Cat2B	nonirritant				Category 2B	
274	TNO-27		TNO-Prinsen	n.p.	Cat2B	nonirritant	Cat2B				Category 2B	
275	TNO-54		TNO-Prinsen	n.p.	Cat2B	Cat2B	nonirritant				Category 2B	
276	TNO-37		TNO-Prinsen	n.p.	Cat2B	nonirritant	Cat2B				Category 2B	
277	TNO-56		TNO-Prinsen	n.p.	nonirritant	Cat2B	Cat2B				Category 2B	
278	2-Pseudojonon		ZEBET	n.p.	Cat2B	nonirritant	Cat2B				Category 2B	
279	1,4-Dibutoxy-benzene	104-36-9	ZEBET	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
280	Sodium monochloroacetate	3926-62-3	ZEBET	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
281	p-Nitrobenzoic acid	62-23-7	ZEBET	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
282	Methyl acetate	79-20-9	ZEBET	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
283	Camphen	79-92-5	ZEBET	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
284	m-Dinitrobenzene	99-65-0	ZEBET	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
285	TNO-78		TNO-Prinsen	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
286	TNO-83		TNO-Prinsen	n.p.	Cat2B	Cat2B	Cat2B				Category 2B	
287	PROD-00092		FDA	n.p.	nonirritant	Cat2B	Cat2B	Cat2B	Cat2B	nonirritant	Category 2B	
288	PROD-00059		FDA	n.p.	nonirritant	Cat2B	nonirritant	Cat2B	Cat2B	Cat2B	Category 2B	
289	PROD-00086		FDA	n.p.	Cat2B	Cat2A	nonirritant	Cat2B	Cat2B	Cat2B	Category 2B	
290	PROD-00180		FDA	n.p.	Cat2A	Cat2B	Cat2B	Cat2B	Cat2B	Cat2A	Category 2B	

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
291	PROD-00123		FDA	n.p.	nonirritant	Cat2B	Cat2B	Cat2B	Cat2B	Cat 1(pos1/3)	Category 2B	
292	HZD-1		CTFA	Undiluted	Cat2B	Cat2B	Cat2B				Category 2B	
293	HZU-1		CTFA	Undiluted	Cat2B	Cat2B	Cat2B				Category 2B	
294	Triton X-100	9002-93-1	ECETOC	1%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
295	Trichloroacetic acid	76-03-9	ECETOC	3%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
296	Sodium lauryl sulfate	151-21-3	ECETOC	3%	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
297	Hexyl cinnamic aldehyde	101-86-0	TSCA	6.25%	nonirritant	nonirritant	nonirritant				nonirritant	
298	Bicyclo [2,2,1]hept-5-ene-2-carbonitrile (P30671)	95-11-4	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
299	22-L		NIHS	0.1%	nonirritant	nonirritant	nonirritant				nonirritant	
300	Cetylpyridinium bromide	140-72-7	ECETOC	0.1%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
301	Igepon AC-78	58969-27-0	ECETOC	0.5%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
302	Sodium lauryl sulfate	151-21-3	NIHS	1%	nonirritant	nonirritant	nonirritant				nonirritant	
303	Sodium lauryl sulfate	151-21-3	NIHS	1%	nonirritant	nonirritant	nonirritant				nonirritant	
304	22-D		NIHS	1%	nonirritant	nonirritant	nonirritant				nonirritant	
305	22-O		NIHS	1%	nonirritant	nonirritant	nonirritant				nonirritant	
306	Triethanolamine	102-71-6	NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
307	Ethanol	64-17-5	NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
308	Polyoxyethylene 23 lauryl ether (BRIJ-35)	9002-92-0	Laboratoire National de la Sante	10%	nonirritant	nonirritant	nonirritant				nonirritant	
309	MYRJ-45	9004-99-3	Laboratoire National de la Sante	10%	nonirritant	nonirritant	nonirritant				nonirritant	
310	Triton X-155	9010-44-0	Laboratoire National de la Sante	10%	nonirritant	nonirritant	nonirritant				nonirritant	
311	22-A		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
312	22-B		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
313	22-C		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
314	22-E		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
315	22-F		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
316	22-H		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
317	22-I		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
318	22-K		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
319	22-N		NIHS	10%	nonirritant	nonirritant	nonirritant				nonirritant	
320	p-tert-Butylbenzoic acid, triethanolamine salt	98-73-7	TSCA	10%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
321	Diisopropanolamine	110-97-4	NIHS	10%	nonirritant	Cat2B	nonirritant				nonirritant	
322	Triethanolamine	102-71-6	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
323	Triethanolamine	102-71-6	NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
324	Vinyl tris (beta-methoxyethoxy) silane	1067-53-4	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
325	1-Nitropropane	108-03-2	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
326	Methyl iso-butyl ketone	108-10-1	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
327	Di-iso-butyl ketone	108-83-8	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
328	1,3-Dibromopropane	109-64-8	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
329	2-Methoxyethanol	109-86-4	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
330	Furan	110-00-9	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	

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1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
331	1,4-Dibromobutane	110-52-1	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
332	n-Amyl bromide	110-53-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
333	Hexane	110-54-3	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
334	2-Ethoxyethanol	110-80-5	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
335	1,5-Dibromopentane	111-24-0	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
336	n-Hexyl bromide	111-25-1	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
337	Thiodiglycol	111-48-8	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
338	n-Octyl bromide	111-83-1	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
339	3,4-Dimethoxybenzaldehyde	120-14-9	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
340	2,4-Pentanedione	123-54-6	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
341	Carsonon N-9	127087-87-0	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
342	Nonyl methacrylate	13453-03-7	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
343	Iron pentacarbonyl	13463-40-6	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
344	Potassium tetrafluoroborate	14075-53-7	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
345	Ethyl Acetoacetate	141-97-9	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
346	Ethylthioethyl methacrylate	14216-25-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
347	2-(n-Dodecylthio)ethanol	1462-55-1	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
348	2-Nitro-4-propoxyaniline	20367-34-4	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
349	2-(Acetyloxy)-1-phenylethanone	2243-35-8	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
350	2-Ethoxyethyl methacrylate	2370-63-0	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
351	iso-Octylthioglycolate	25103-09-7	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
352	3-Glycidoxypropyltrimethoxysilane	2530-83-8	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
353	gamma-Glycidyoxypropyltrimethoxy silane	2530-83-8	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
354	gamma-Methacryloxypropyltrimethoxy silane	2530-85-0	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
355	Propylidynetrimethanol, propoxylated	25723-16-4	ISOPA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
356	Polyol 355 UCB	25791-96-2	ISOPA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
357	Glycerol tri-iso-stearate	26492-95-5	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
358	Nonyl acrylate	2664-55-3	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
359	Dynasylan VPS 8815	273737-91-0	TSCA 8(e) Website	100%	nonirritant	nonirritant	nonirritant				nonirritant	
360	Iso-stearyl alcohol	27458-93-1	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
361	Vinyltrimethoxy silane	2768-02-7	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
362	Iso-octyl acrylate	29590-42-9	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
363	iso-Stearic acid	30399-84-9	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
364	2-(4-Oxopentyl)-1H-isoindole-1,3 (2H)-dione	3197-25-9	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
365	Myristyl myristate	3234-85-3	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
366	p-Methylthiobenzaldehyde	3446-89-7	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
367	Perfluoro-n-hexane	355-42-0	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
368	Perfluoro-n-hexane	355-42-0	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
369	Ethyltriglycol methacrylate	36670-09-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
370	2,2',2''-Nitrilotriethanol, propoxylated	37208-53-0	ISOPA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
371	Trifluoroethyl methacrylate	392-68-7	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
372	gamma-Mercaptopropyltrimethoxy silane	4420-74-0	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	

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373	Polyol XZ 95435.00	52625-13-5	ISOPA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
374	Iso-myristyl alcohol	5333-48-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
375	tetra-Aminopyrimidine sulfate	5392-28-9	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
376	Heptyl methacrylate	5459-37-0	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
377	1-(4-Phenyl-phenoxy)-1-(1,2,4-triazole-1-3,3-dimethylbutan	55179-31-2	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
378	3,3-Dimethylpentane	562-49-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
379	4-Bromophenetole	589-10-6	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
380	Dimethyl carbonate	616-38-6	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
381	Polyoxyethylene hydrogenated castor oil	61788-85-0	NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
382	3-Methoxy-1,2-propanediol	623-39-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
383	2,4-Pentanediol	625-69-4	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
384	1,6-Dibromohexane	629-03-8	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
385	Ethyleneglycol diethyl ether	629-14-1	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
386	Di-n-propyl disulfide	629-19-6	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
387	Dimethylsulfoxide (DMSO)	67-68-5	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
388	Dimethylhydropolysiloxane	68037-59-2	TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
389	iso-Propyl iso-stearate	68171-33-5	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
390	1-Bromo-4-chlorobutane	6940-78-9	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
391	iso-Propyl bromide	75-26-3	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
392	Sodium chloride, isotonic	7647-14-5	NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
393	2-Ethylhexylthioglycolate	7659-86-12	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
394	Bromo-2-butane	78-76-2	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
395	4,4'-sulfonylbisbenzenamine	80-08-0	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
396	Petroleum Ether	8030-30-6	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
397	Polyoxyethylene sorbitan monolaurate	9005-64-5	NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
398	Pentaerythritol, propoxylated	9051-49-4	ISOPA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
399	1H-Indole-2,3-dione	91-56-5	GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
400	1,2,4-Trimethylbenzene	95-36-3	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
401	1,2,3-trichloropropane	96-18-4	Laboratoire National de la Sante	100%	nonirritant	nonirritant	nonirritant				nonirritant	
402	Dichlorotoluenes	mixture of isomers	ECETOC	100%	nonirritant	nonirritant	nonirritant				nonirritant	
403	Cutting fluid concentrate (337)		ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	nonirritant				nonirritant	
404	2-Chloro-2,4,4-trimethylpentane		ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	nonirritant				nonirritant	
405	Aromatic hydrocarbon (750)		ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	nonirritant				nonirritant	
406	Aromatic hydrocarbon (749)		ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	nonirritant				nonirritant	
407	PROD-00295		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
408	PROD-00160		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
409	PROD-00162		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
410	PROD-00165		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
411	PROD-00167		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
412	PROD-00171		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
413	PROD-00174		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
414	PROD-00176		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
415	PROD-00177		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	

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416	PROD-00178		FDA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
417	5-Chloro-3-methylbenzo[b]thiophene-2-sulfonyl chloride		GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
418	1-(5-Amino-2-methoxyphenyl) piperazine hydrochloride		GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
419	5-Chloro-2,4-disulfamoyl chloroacetanilide		GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
420	3-((Benzylthio)methyl)-6-chloro-,1,1-dioxide		GlaxoSmithKline	100%	nonirritant	nonirritant	nonirritant				nonirritant	
421	Toilet bowl cleaner		S.C. Johnson & Son, Inc.	100%	nonirritant	nonirritant	nonirritant				nonirritant	
422	Perfecto Petrolatum		TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
423	CNF-579		TSCA	100%	nonirritant	nonirritant	nonirritant				nonirritant	
424	Polyethyleneglycol monolaurate		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
425	22-A		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
426	22-B		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
427	22-F		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
428	22-H		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
429	22-J		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
430	22-K		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
431	22-M		NIHS	100%	nonirritant	nonirritant	nonirritant				nonirritant	
432	Styrene	100-42-5	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
433	Methyl iso-butyl ketone	108-10-1	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
434	Methyl amyl ketone	110-43-0	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
435	n-Butyl acetate	123-86-4	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
436	Xylene	1330-20-7	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
437	Ethyl acetate	141-78-6	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
438	Tween 20	9005-64-5	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
439	PROD-00005 BASE-00005		FDA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant		nonirritant	
440	Triphenyl Phosphite	101-02-0	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
441	2-Methoxy-3,4-Dihydropyran	103-75-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
442	Silicone Y-4081	107-46-0	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
443	2-Methylpentane	107-83-5	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
444	Dodecane	112-40-3	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
445	Octadecyl isocyanate	112-96-9	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
446	4,4-Methylene bis-(2,6-di-tert-butyl phenol)	118-82-3	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
447	Fungitrol zinc 8% fungicide	12001-85-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
448	Tricresylphosphate	1330-78-5	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
449	1-Methylpropyl benzene	135-98-8	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
450	1,9-Decadiene	1647-16-1	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
451	Polymethylenepolyphenylenepolyamine	25214-70-4	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
452	3-Mercaptopropyl trimethoxy silane	2530-87-2	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
453	g-Chloropropyltrimethoxy silane	2530-87-2	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
454	Polyethylene glycol 400	25322-68-3	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
455	Polyethylene glycol 600	25322-68-3	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
456	Triisodecyl Phosphite	25448-25-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
457	Organofunctional Silane 53-98	26115-70-8	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
458	Chlorpyrifos	2921-88-2	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
459	Triethoxyoctylsilane	2943-75-1	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
460	1,5-Dimethyl cyclo-octadiene	3760-14-3	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
461	2,3-Dimethyl 2,3-dinitrobutane	3964-18-4	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
462	Benzoflex S-312	4196-89-8	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
463	3-Chloro-4-fluoronitrobenzene	446-35-5	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
464	Brodifacoum	56073-10-0	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
465	Glycerol	56-81-5	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
466	Propylene glycol	57-55-6	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
467	3-Methylhexane	589-34-4	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
468	1,5-Hexadiene	592-42-7	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant
469	Methyl trimethyl acetate	598-98-1	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant

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470	3-Ethyl toluene	620-14-4	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
471	Amyl acetate	628-63-7	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
472	Dow Corning X201133 Heat Transfer Fluid	63148-62-9	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
473	Clarified slurry oil	64741-62-4	ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
474	C6 alpha olefin	68855-57-2	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
475	C10 alpha olefins	68855-58-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
476	C16 alpha olefin	68855-58-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
477	Ethylene oxide	75-21-8	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
478	2-Ethylhexanoyl Chloride	760-67-8	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
479	Kerosine	8008-20-6	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
480	Igepal CO-990	84852-15-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
481	cis-Cyclo-octene	931-88-4	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
482	Vinyl 2-ethylhexanoate	94-04-2	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
483	Allyl methacrylate	96-05-9	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
484	1,2,3-trichloropropane	96-18-4	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
485	Methyl cyclopentane	96-37-7	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
486	p-Chlorobenzotrifluoride	98-56-6	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
487	Nitrobenzene	98-95-3	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
488	1,3-Di-iso-propyl benzene	99-62-7	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
489	C12-16 blend alpha olefin	AZ7987000	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
490	Methyl cyclopentadiene dimer		ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
491	PROD-00292		FDA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
492	PROD-00294 BASE-00294		FDA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
493	PROD-00291		FDA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
494	Insect repellent formulation 2-4		S. C. Johnson & Son, Inc.	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
495	Insect repellent formulation 2-7		S. C. Johnson & Son, Inc.	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
496	Insect repellent formulation 2-8		S. C. Johnson & Son, Inc.	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
497	Kronitex CDP		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
498	Kronitex TCP		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
499	Kronitex TXP		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
500	Kronitex TXP		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
501	Kronitex 50		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
502	Kronitex 100		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
503	Kronitex 200		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
504	Kronitex 300		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
505	Kronitex 200B		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
506	MP-600		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
507	Kronitex Blend Stock		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
508	Dequest 2016		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
509	Heloxy MK-107		TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
510	Glycidyl methacrylate	106-91-2	ECETOC	100%	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
511	Cyclohexanone	108-94-1	Laboratoire National de la Sante	100%	Cat2B	nonirritant	nonirritant				nonirritant	
512	M-Phenoxybenzyl Alcohol	13826-35-2	TSCA	100%	nonirritant	nonirritant	Cat2B				nonirritant	
513	2,2-Dimethyl-3-pentanol	3970-62-5	ECETOC	100%	Cat2B	nonirritant	nonirritant				nonirritant	
514	2-Nitro-4-thio-N-propylaniline	54393-89-4	GlaxoSmithKline	100%	Cat2B	nonirritant	nonirritant				nonirritant	
515	N,N-Dimethylguanidine sulfate	598-65-2	ECETOC	100%	nonirritant	Cat2B	nonirritant				nonirritant	
516	Ethyl thioglycolate	623-51-8	ECETOC	100%	nonirritant	Cat2B	nonirritant				nonirritant	
517	Cutting fluid concentrate (333)		ExxonMobil Biomedical Sciences	100%	nonirritant	nonirritant	Cat2B				nonirritant	

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1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
518	PROD-00169		FDA	100%	Cat2B	nonirritant	nonirritant				nonirritant	
519	6-(Methylamino)-2-pyridine ethanol formate (1:1) (salt)		GlaxoSmithKline	100%	nonirritant	Cat2B	nonirritant				nonirritant	
520	CNF-580		TSCA	100%	nonirritant	nonirritant	Cat2B				nonirritant	
521	Toluene	108-88-3	ECETOC	100%	nonirritant	Cat2B	nonirritant	nonirritant			nonirritant	
522	Methyl amyl ketone	110-43-0	ECETOC	100%	Cat2B	nonirritant	nonirritant	nonirritant			nonirritant	
523	Methylal	109-87-5	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
524	Methylal	109-87-5	TSCA	100%	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
525	Ethyl trimethyl acetate	3938-95-2	ECETOC	100%	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
526	p-tert-Butylbenzoic acid, triethanolamine salt	98-73-7	TSCA	100%	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	
527	C-150		TSCA	100%	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
528	PROD-00143		FDA	100%	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	Cat2B	nonirritant	
529	Propylene glycol monomethyl ether		TSCA	100%	nonirritant	nonirritant	Cat2B	nonirritant	Cat2B	nonirritant	nonirritant	
530	3-Hydroxy-2-phenyl-4-quinolinecarboxylic acid	485-89-2	GlaxoSmithKline	100%	nonirritant	Cat2A	nonirritant				nonirritant	
531	Methanol	67-56-1	Laboratoire National de la Sante	100%	nonirritant	nonirritant	Cat2A				nonirritant	
532	Cellosolve acetate	111-15-9	ECETOC	100%	Cat2A	nonirritant	nonirritant	nonirritant			nonirritant	
533	Xylene	1330-20-7	ECETOC	100%	nonirritant	nonirritant	nonirritant	Cat2A			nonirritant	
534	Fomesafen, acid form (solid)	72128-02-0	ECETOC	100%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	Cat2A	nonirritant	
535	Igepal CO-720	9016-45-9	TSCA	100%	Cat2A	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
536	Anthracene	120-12-7	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
537	2-Mercaptopyrimidine	1450-85-7	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
538	Aluminum hydroxide	21645-51-2	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
539	Ethylenediaminetetraacetate Di-K Salt	25105-12-9	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
540	2,4-Dichloro-5-sulfamoyl-benzoic acid	2736-23-4	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
541	Iminodibenzyl	494-19-9	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
542	Phenylbutazone	50-33-9	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
543	Magnesium Carbonate	546-93-0	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
544	Betaine monohydrate	590-47-6	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
545	DL Glutamic Acid	617-65-2	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
546	Gluconolactone	90-80-2	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
547	1-Phenyl-3-pyrazolidone	92-43-3	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
548	Propyl-4-Hydroxybenzoate	94-13-3	Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	

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1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
549	2-Aminophenol		Laboratoire National de la Sante	20%	nonirritant	nonirritant	nonirritant				nonirritant	
550	Tetraaminopyrimidine Salt	5392-28-9	Laboratoire National de la Sante	20%	Cat2A	nonirritant	nonirritant				nonirritant	
551	Dimethylbiquanide	657-24-9	Laboratoire National de la Sante	205	nonirritant	nonirritant	nonirritant				nonirritant	
552	HZM-1		CTFA	25%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
553	HZN-1		CTFA	25%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
554	HZG-1		CTFA	25%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
555	HZV-1		CTFA	25%	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	
556	HZD-1		CTFA	25%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant
557	HZB-1		CTFA	25%	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant
558	HZU-1		CTFA	25%	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	Cat2B	nonirritant	
559	Sodium polyoxyethylene laurylether sulfate	9004-82-4	NIHS	27%	nonirritant	nonirritant	nonirritant				nonirritant	
560	Triethanolamine Orthovanadate	13476-99-8	TSCA	3%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
561	Triethanolamine Orthovanadate	13476-99-8	TSCA	30%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
562	5% Ivory soap solution		TSCA	5%	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
563	TNO-69		TNO-Prinsen	50%	nonirritant	nonirritant	nonirritant				nonirritant	
564	3H-Pyrazole-3-one, 2(4-aminophenyl),4-dihydro-5-(1-pyrrolidinyl)	30707-77-8	TSCA 8(e) Website	n.a.	nonirritant	nonirritant	nonirritant				nonirritant	
565	Disperse red 60	17418-58-5	TSCA	n.a.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
566	Hexamethylenetetramine	100-97-0	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
567	Phenylthiourea	103-85-5	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
568	4-Aminoazobenzene-4-sulphonic acid	104-23-4	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
569	1,2,6-Hexanetriol	106-69-4	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
570	5-Methyl-1,3,4-thiadiazol-2-amine	108-33-8	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
571	Trioxane	110-88-3	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
572	Methyltriglycol	112-35-6	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
573	Genomoll	115-96-8	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
574	Isobornyl acetate	125-12-2	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
575	2-Hydroxyethyliminodisodiumacetate	135-37-5	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
576	4-Chloro-4-nitrodiphenylether	1836-74-4	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
577	TNO-61	23149-52-2	TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
578	Cerium-2-ethylhexanoate	24593-34-8	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
579	Polyethyleneglycoldimethylether	24991-55-7	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
580	Triisooctylamine	25549-16-0	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
581	Silan 165	29055-11-6	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
582	Silan 108	3069-40-7	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
583	Isononylaldehyde	35127-50-5	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
584	Xanthinol nicotinate	437-74-1	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
585	TNO-62	50-21-5	TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
586	Hexahydrofarnesylacetone	502-69-2	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
587	Potato starch	56780-58-6	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
588	m-Methoxybenzaldehyde	591-31-1	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
589	4,4-Dimethyl-3-oxopentenenitrile	59997-51-2	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
590	Isotridecanal	61497-46-9	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
591	Genagen	68139-91-3	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
592	Methyletraglycol	9004-74-4	ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
593	PROD-00295		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
594	PROD-00085		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
595	PROD-00096		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
596	PROD-00073		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
597	PROD-00076		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
598	PROD-00119		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
599	PROD-00131		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	

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600	PROD-00150		FDA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
601	TNO-3		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
602	TNO-5		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
603	TNO-6		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
604	TNO-7		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
605	TNO-8		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
606	TNO-10		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
607	TNO-12		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
608	TNO-13		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
609	TNO-14		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
610	TNO-15		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
611	TNO-17		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
612	TNO-18		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
613	TNO-19		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
614	TNO-20		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
615	TNO-21		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
616	TNO-22		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
617	TNO-23		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
618	TNO-24		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
619	TNO-25		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
620	TNO-33		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
621	TNO-38		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
622	TNO-39		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
623	TNO-45		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
624	TNO-46		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
625	TNO-47		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
626	TNO-57		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
627	TNO-58		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
628	TNO-59		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
629	TNO-60		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
630	TNO-63		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
631	TNO-64		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
632	TNO-65		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
633	TNO-66		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
634	TNO-71		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
635	TNO-72		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
636	TNO-74		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
637	TNO-75		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
638	TNO-76		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
639	TNO-77		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
640	TNO-79		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
641	TNO-80		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
642	TNO-81		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
643	TNO-82		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
644	TNO-84		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
645	TNO-86		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
646	TNO-87		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
647	TNO-88		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
648	TNO-89		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
649	TNO-90		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
650	TNO-91		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
651	KWG 0519		TSCA	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
652	1,6,7,12-Tetrachloro-3,4,9,10-tetracarboxylic acid anhydride		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
653	Ede 140		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
654	Glycediol		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
655	Hinol		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
656	Hoe MBF		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
657	Hoe T 3761		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
658	Hypo 20		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
659	Hypo 36		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
660	Mecre		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	
661	Nitro-bis-octylamide		ZEBET	n.p.	nonirritant	nonirritant	nonirritant				nonirritant	

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
662	Piperazine	18833-13-1	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
663	Theophylline sodium	3485-82-3	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
664	3-5-Dihydroxyacetophenone	35086-59-0	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
665	1-(2,6-Dimethylphenoxy)-2-propanol	53012-41-2	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
666	Ambuphylline	5634-34-4	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
667	(-)Phenylephrine	59-42-7	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
668	(+) Phenylephrine	614-03-9	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
669	Phenylephrine hydrochloride	61-76-7	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
670	Caffeine sodium benzoate	8000-95-1	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
671	Caffeine sodium salicylate	8002-85-5	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
672	Theophylline sodium acetate	8002-89-9	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
673	Theobromine	83-67-0	ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
674	PROD-00056		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
675	DC 8		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
676	Hypo 45		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
677	Napt		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
678	Phosphonat A		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
679	PO 2		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
680	TA 01946 Alkylsilan		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant			nonirritant	
681	PROD-00005		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant		nonirritant	
682	Hexabromocyclododecane	25637-99-4	TSCA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
683	Syltherm 444 Heat Transfer Fluid	63148-62-9	TSCA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
684	TNO-31	7704-34-9	TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
685	Tetrabromobisphenol A	79-94-7	TSCA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
686	Tetrabromobisphenol A	79-94-7	TSCA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
687	Igepal CO-210	84852-15-3	TSCA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
688	Phenothiazine	92-84-2	TSCA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
689	PROD-00292		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
690	PROD-00294		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
691	PROD-00013		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
692	PROD-00014		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
693	PROD-00183		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
694	PROD-00185		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
695	PROD-00186		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
696	PROD-00082		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
697	PROD-00083		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
698	PROD-00084		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
699	PROD-00088		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
700	PROD-00093		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
701	PROD-00065		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
702	PROD-00066		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
703	PROD-00097		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
704	PROD-00069		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
705	PROD-00100		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
706	PROD-00106		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
707	PROD-00107		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
708	PROD-00108		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
709	PROD-00113		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
710	PROD-00071		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
711	PROD-00075		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
712	PROD-00079		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
713	PROD-00080		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
714	PROD-00117		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
715	PROD-00128		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
716	PROD-00132		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
717	PROD-00133		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
718	TNO-16		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
719	TNO-26		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
720	TNO-32		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
721	TNO-53		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
722	TNO-67		TNO-Prinsen	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
723	B 25		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
724	Bis-(3-triethoxisilylpropyl)-tetrasulphide		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
725	RK Blau		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
726	Sacyclo		ZEBET	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
727	1,2-Epoxyoctane	286-62-4	ZEBET	n.p.	nonirritant	nonirritant	Cat2B				nonirritant	
728	Sodium bisulphite	7631-90-5	ZEBET	n.p.	nonirritant	nonirritant	Cat2B				nonirritant	
729	PROD-00184		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
730	PROD-00187		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
731	PROD-00193		FDA	n.p.	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
732	PROD-00094		FDA	n.p.	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
733	PROD-00105		FDA	n.p.	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	
734	PROD-00129		FDA	n.p.	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
735	TNO-30		TNO-Prinsen	n.p.	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	
736	PROD-00125		FDA	n.p.	Cat2B	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
737	Phosphoric acid, tributyl ester	126-73-8	TSCA	n.p.	nonirritant	Cat2A	nonirritant				nonirritant	
738	PROD-00134		FDA	n.p.	nonirritant	nonirritant	Cat2A				nonirritant	
739	TNO-9		TNO-Prinsen	n.p.	nonirritant	nonirritant	Cat2A				nonirritant	
740	CMB		TSCA	n.p.	nonirritant	Cat2A	nonirritant				nonirritant	
741	TNO-1		TNO-Prinsen	Undiluted	nonirritant	nonirritant	nonirritant				nonirritant	
742	T-3752		TSCA	Undiluted	nonirritant	nonirritant	nonirritant				nonirritant	
743	EPIKOTE RSS 1079	047758-37-2	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
744	Triethylene glycol	112-27-6	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
745	Tributyl phosphate	126-73-8	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
746	2,4-Dicyano-1-butene	1572-52-7	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
747	EPIKURE 1061	2716-10-1	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
748	EPIKURE 1062	2716-12-3	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
749	3-Phenoxy benzaldehyde	39515-51-0	TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
750	HZF		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
751	HZA		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
752	HZB		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
753	HZC		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
754	HZE		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
755	HZI		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
756	HZJ		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
757	HZN		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
758	HZO		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
759	HZP		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
760	HZQ		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
761	HZS		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
762	HZT		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
763	HZU		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
764	HZV		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
765	HZW		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
766	HZY		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
767	HZP-1		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
768	HZH-1		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
769	HZJ-1		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
770	HZT-1		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
771	HZZ-1		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
772	T-2001CoC		TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
773	T-3608		TSCA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
774	HZH		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	

	A	B	D	E	F	G	H	I	J	K	L	M
1	SUBSTANCE NAME	CASRN	SOURCE	CONCENTRATION	ANIMAL 1	ANIMAL 2	ANIMAL 3	ANIMAL 4	ANIMAL 5	ANIMAL 6	OVERALL CLASSIFICATION	SUBCLASSIFICATION
775	T-3727		TSCA	Undiluted	Cat2B	nonirritant	nonirritant				nonirritant	
776	HZQ-1		CTFA	Undiluted	nonirritant	Cat2B	nonirritant	nonirritant	nonirritant	nonirritant	nonirritant	
777	HZL		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	nonirritant	
778	HZM		CTFA	Undiluted	nonirritant	nonirritant	nonirritant	Cat2B	nonirritant	Cat2B	nonirritant	
779												
780												
781												
782												

	A	N	O	P	Q
	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
1					
2	Sodium hydroxide	ALKALIS		0.1 ml	1-0-0-0-0
3	Benzalkonium chloride	ONIUM	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
4	Cetylpyridinium bromide	ONIUM,HETEROCYCLE		0.1 ml	5-1-0-0-0
5	Trichloroacetic acid	CARBOXYLIC ACID		0.1 ml	1-0-0-0-0
6	Sodium undecylenate solution	SALT, ORGANIC,CARBOXYLIC ACID, SALT		0.1 ml	1-0-0-0-0
7	Potassium laurate	SALT, ORGANIC,CARBOXYLIC ACID, SALT		0.1 ml	1-0-0-0-2
8	Butanol	ALCOHOL		0.1 ml	1-0-0-1-1
9	Sodium lauryl sulfate	SALT, ORGANIC,CARBOXYLIC ACID, SALT		0.1 ml	2-0-0-0-1
10	Benzethonium chloride	AMINE,ONIUM		0.1 ml	2-1-0-0-0
11	Sodium lauryl sulfate	SALT, ORGANIC,CARBOXYLIC ACID, SALT		0.1 ml	3-0-0-0-0
12	Stearyltrimethylammonium chloride	ONIUM,SALT, ORGANIC		0.1 ml	3-0-0-0-0
13	Domiphen bromide	ONIUM,ETHER,SALT, ORGANIC		0.1 ml	3-0-0-0-0
14	Hexadecyltrimethylammonium Bromide (CTAB)	ONIUM		0.1 ml	3-0-0-0-0
15	Cetyltrimethylammonium bromide	ONIUM,SALT, ORGANIC		0.1 ml	3-0-0-0-0
16	Acetic acid	CARBOXYLIC ACID		0.1 ml	3-0-0-0-0
17	22-L	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
18	1,2,4-Triazole, sodium Salt	HETEROCYCLE,SALT, ORGANIC		100 mg	1-0-0-0-0
19	5-Chloro-N-[4-methoxy-3-(1-piperazinyloxy)phenyl]-3-methylbenzo[B]thiophene-2-sulfonamide monohydrochloride	HETEROCYCLE,ETHER,AMIDE		0.1 ml or 100 mg	1-0-0-0-0
20	Methylthioglycolate	ESTER,SULFUR COMPOUND, ORGANIC		0.1 ml	1-0-0-2-0
21	Bis-(3-aminopropyl) tetramethyl disiloxane	AMINE,ORGANOSILICON COMPOUND	INDUSTRIAL CHEMICALS	0.1 ml	2-0-0-0-0
22	Cyclohexyl isocyanate	ISOCYANATES		0.1 ml	2-0-0-0-0
23	22-O	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	2-0-0-0-1
24	Methoxyethyl acrylate	ESTER,ETHER		0.1 ml	2-0-0-1-0
25	Tetrahydrofuran	HETEROCYCLE,ETHER		0.1 ml	2-0-0-4-0
26	Surfonic N-102	ALCOHOL,ETHER		0.1 ml	2-0-3-0-1
27	Captan 90-concentrate (solid)	IMIDE,SULFUR COMPOUND, ORGANIC		100 mg	3-0-0-0-0
28	Imidazole	HETEROCYCLE		100 mg	3-0-0-0-0
29	Lactic acid	CARBOXYLIC ACID,ALCOHOL		0.1 ml	3-0-0-0-0
30	Diethylaminopropionitrile	AMINE,NITRILE		0.1 ml	3-0-0-0-0
31	Carboxylic acid amides	AMIDE,ACID	PETROLEUM PRODUCTS	0.1 ml	3-0-0-0-0
32	22-C	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
33	22-D	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
34	22-G	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
35	22-I	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
36	22-N	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
37	Degreaser (sample 16)	FORMULATION	CLEANERS	0.1 ml	3-0-3-0-0
38	n-Octylamine	AMINE		0.1 ml	4-0-0-0-0
39	1,3-Diiminobenz (f)-isoindoline	AMINE,HETEROCYCLE		0.1 g	4-0-0-0-0
40	Sodium perborate tetrahydrate	SALT, INORGANIC,BORON CONTAINING COMPOUND		60 mg	4-0-2-0-0
41	Glass cleaner (sample 19)	FORMULATION	CLEANERS	0.1 ml	5-0-0-1-0
42	Diethylethanolamine	AMINE,ALCOHOL		0.1 ml	5-0-1-0-0
43	Amway automatic dishwashing compound, standard formula	FORMULATION	DETERGENTS	100 mg	5-0-1-0-0
44	Amway chlorine bleach	FORMULATION	BLEACHES	100 mg	5-0-1-0-0

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
45	Surfonic HDL-1	ALCOHOL,ETHER		0.1 ml	5-1-0-0-0
46	2-Benzyl-4-chlorophenol	PHENOL		0.1 ml	6-0-0-0-0
47	N,N,N',N'-Tetramethylhexanediamine	AMINE		0.005 ml	6-0-0-0-0
48	Antimony oxide	INORGANIC CHEMICAL		0.1 g	6-0-0-0-0
49	Phosphorodichloridic acid, ethyl ester	ESTER,ORGANOPHOSPHOROUS COMPOUND		0.1 ml	6-0-0-0-0
50	gamma-Aminopropyltriethoxy silane	AMINE,ORGANOSILICON COMPOUND		0.1 ml	6-0-0-0-0
51	Amway automatic dishwashing compound for soft water	FORMULATION	DETERGENTS	100 mg	6-0-0-0-0
52	Amway concrete floor cleaner	FORMULATION	CLEANERS	100 mg	6-0-0-0-0
53	Amway Pursue disinfectant cleaner	FORMULATION	CLEANERS	0.1 ml	6-0-0-0-0
54	Ethylhexyl acid phosphate ester	ESTER,ACID	PETROLEUM PRODUCTS	0.1 ml	6-0-0-0-0
55	PROD-00153	FORMULATION		0.1 ml or 100 mg	6-0-0-0-0
56	PROD-00157	FORMULATION		0.1 ml or 100 mg	6-0-0-0-0
57	Floor stripper (sample 18)	FORMULATION	FLOOR STRIPPER	0.1 ml	6-0-0-0-0
58	Metal cleaner (sample 20)	FORMULATION	CLEANERS	0.1 ml	6-0-0-0-0
59	Dibenzoyl-L-tartaric acid	CARBOXYLIC ACID,ESTER		0.1 ml	1-0-1-1-0
60	Promethazine hydrochloride	AMINE,HETEROCYCLE,SULFUR COMPOUND, ORGANIC		0.1 ml	3-0-0-0-0
61	Diethylethanolamine	AMINE,ALCOHOL		0.1 ml	6-0-0-0-0
62	Diethylethanolamine	AMINE,ALCOHOL		0.1 ml	6-0-0-0-0
63	4-Tert-butylcatechol	PHENOL		0.1 ml	6-0-0-0-0
64	Acid blue 40	AMINE,SALT, ORGANIC,QUINONES		100 mg	2-0-3-0-1
65	4-Amino-5-methoxy-2-methylbenzene-sulphonic acid	AMINE,ETHER,SULFUR COMPOUND, ORGANIC		0.1 ml or 0.1 g	1-0-0-0-0
66	Sodium hydrogen sulfate	SALT, INORGANIC		solid	1-0-0-0-0
67	Methylpentynol	ALCOHOL		liquid	1-0-0-0-0
68	B-Resorcylic acid	CARBOXYLIC ACID,PHENOL		solid	1-0-0-0-0
69	4-Chloro-methanilic acid	AMINE,SULFUR COMPOUND, ORGANIC		0.1 ml or 0.1 g	1-0-0-0-0
70	Diphocars	UNKNOWN		0.1 ml or 0.1 g	1-0-0-0-0
71	n-Butanol	ALCOHOL		liquid	1-0-1-0-1
72	Polyhexamethylene guanidine	AMIDINE		0.1 ml or 0.1 g	1-0-2-0-0
73	Sodium disilicate	SALT, INORGANIC		0.1 ml or 0.1 g	3-0-0-0-0
74	2-Hydroxyisobutyric acid	CARBOXYLIC ACID		solid	3-0-0-0-0
75	N-(2-Methylphenyl)-imidodicarbonimidic diamide	AMIDINE		0.1 ml or 0.1 g	3-0-0-0-0
76	PROD-00138	FORMULATION		0.1 ml or 0.1 g	3-0-0-0-0
77	Trichloroacetyl chloride	ACYL HALIDES		0.1 ml	4-0-0-0-0
78	PROD-00062	FORMULATION		0.1 ml or 0.1 g	4-0-1-0-1
79	PROD-00072	FORMULATION		0.1 ml or 0.1 g	4-0-2-0-0
80	Benzenesulfonyl chloride	ACYL HALIDES,SULFUR COMPOUND, ORGANIC		0.1 ml	5-1-0-0-0
81	Antimony trioxide	INORGANIC CHEMICAL		100 mg	6-0-0-0-0
82	Aluminum chloride	SALT, INORGANIC		0.1 ml	6-0-0-0-0
83	PROD-00068	FORMULATION		0.1 ml or 0.1 g	6-0-0-0-0
84	PROD-00074	FORMULATION		0.1 ml or 0.1 g	6-0-0-0-0
85	PROD-00078	FORMULATION		0.1 ml or 0.1 g	6-0-0-0-0
86	PROD-00098	FORMULATION		0.1 ml or 100 mg	6-0-0-0-0
87	PROD-00114	FORMULATION		0.1 ml or 100 mg	6-0-0-0-0
88	Hydroxyethyl acrylate	ALCOHOL,ESTER		0.1 ml	5-1-0-0-0
89	T-1585	FORMULATION		0.1 g	6-0-0-0-0
90	Promethazine hydrochloride	AMINE,HETEROCYCLE,SULFUR COMPOUND, ORGANIC		100 mg	0-3-0-0-0

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
	Quinacrine	AMINE,HETEROCYCLE,POLYCYCLIC COMPOUNDS		100 mg	3-0-0-0-0
91	PROD-00147	FORMULATION		0.1 ml or 100 mg	5-1-0-0-0
92	Benzalkonium chloride	ONIUM	SOAPS AND SURFACTANTS	0.1 ml	2-2-0-0-0
93	Dibenzoyl-L-tartaric acid	CARBOXYLIC ACID,ESTER		100 mg	0-2-0-1-0
94	4-(1,1,3,3-Tetramethylbutyl)phenol	PHENOL		0.1 g	0-6-0-0-0
95	p-Octylphenol	PHENOL		0.1 ml	0-6-0-0-0
96	Cyclohexanol	ALCOHOL		0.1 ml	1-2-1-0-0
97	2-Hydroxyisobutyric acid ethylester	ALCOHOL,ESTER		solid	0-3-0-0-0
98	PROD-00057	FORMULATION		0.1 ml or 0.1 g	0-5-0-0-0
99	PROD-00099	FORMULATION			0-6-0-0-0
100	2,5-Dimethylhexanediol	ALCOHOL			1-0-2-0-0
101	Calcium sulfhydrate solution	SALT, INORGANIC		0.1 ml	1-0-0-0-0
102	22-O	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	1-0-1-1-0
103	PROD-00045	FORMULATION		0.1 ml or 100 mg	1-0-0-2-0
104	PROD-00047	FORMULATION		0.1 ml or 100 mg	1-0-0-2-0
105	2,5-Dimethylhexanediol	ALCOHOL		0.1 ml (40 mg)	1-0-2-0-0
106	Soap from 80/20-tallow/coconut oil (solid)	FORMULATION		100 mg	1-0-2-0-0
107	PROD-00044	FORMULATION		0.1 ml or 100 mg	1-0-2-0-0
108	Soap from 80/20 palm oil/coconut oil (solid)	FORMULATION		100 mg	2-0-1-0-0
109	Vehicle control (test material #16)	UNKNOWN		0.1 ml	2-0-2-0-2
110	gamma-Aminopropyltriethoxy silane	AMINE,ORGANOSILICON COMPOUND		0.005 ml	2-0-2-2-0
111	PROD-00141	FORMULATION		0.1 ml or 100 mg	2-0-3-1-0
112	3,4-Dichlorophenyl isocyanate	ISOCYANATES		0.1 ml	3-0-0-0-0
113	Butyl cellosolve	ALCOHOL,ETHER		0.1 ml	3-0-0-0-0
114	Lauric acid	CARBOXYLIC ACID		0.1 ml (52 mg)	3-0-0-0-0
115	Protectol PP	ALDEHYDES		0.1 ml	3-0-0-0-0
116	AU-358 LTV	UNKNOWN		0.1 ml	3-0-0-0-0
117	PROD-00046	FORMULATION		0.1 ml or 100 mg	3-0-0-0-0
118	PROD-00048	FORMULATION		0.1 ml or 100 mg	3-0-0-0-0
119	1-Naphthalene acetic acid, sodium salt (solid)	SALT, ORGANIC,POLYCYCLIC COMPOUNDS,CARBOXYLIC ACID, SALT		100 mg	4-0-2-0-0
120	Amway SA8 laundry liquid	FORMULATION	DETERGENTS	0.1 ml	5-0-0-0-0
121	Insect repellent benchmark (Group 2)	FORMULATION	INSECT REPELLENT	0.1 ml	5-0-0-0-1
122	2-Benzyl-4-chlorophenol	PHENOL		0.1 g	6-0-0-0-0
123	Quinacrine	AMINE,HETEROCYCLE,POLYCYCLIC COMPOUNDS		0.1 ml	3-0-0-0-0
124	TNO-35	ESTER,ALCOHOL		0.1 ml or 0.1 g	1-0-0-0-0
125	Silane A-1102	ORGANOSILICON COMPOUND		0.1 ml	1-0-0-0-0
126	Olak	UNKNOWN		0.1 ml or 0.1 g	1-0-0-0-0
127	3,6-Dimethyloctanol	ALCOHOL		0.1 ml or 0.1 g	1-0-0-2-0
128	TNO-85	FORMULATION		0.1 ml or 0.1 g	1-0-0-2-0
129	iso-Butanol	ALCOHOL		liquid	1-0-2-0-0
130	7-Acetoxyheptanal	ALDEHYDES,ESTER		0.1 ml or 0.1 g	1-0-2-0-0
131	PROD-00058	FORMULATION		0.1 ml or 0.1 g	2-0-0-0-4
132	PROD-00188	FORMULATION	SUNSCREENS	0.1 ml	2-0-2-2-0
133	alpha-ketoglutaric acid	CARBOXYLIC ACID		solid	2-1-0-0-0
134	1-Chlorooctan-8-ol	ALCOHOL		0.1 ml or 0.1 g	3-0-0-0-0
135	C12/C14-Glucoside	ETHER,ALCOHOL		0.1 ml or 0.1 g	3-0-0-0-0
136	Hvdo 98	UNKNOWN		0.1 ml or 0.1 g	3-0-1-0-0
137	Sept	UNKNOWN		0.1 ml or 0.1 g	3-0-1-0-0
138	PROD-00189	FORMULATION	COSMETICS	0.1 ml	3-0-3-0-0
139	Tocla	UNKNOWN		0.1 ml or 0.1 g	4-0-0-0-0
140	PROD-00102	FORMULATION		0.1 ml or 100 mg	4-0-2-0-0
141	PROD-00182	FORMULATION	COSMETICS	0.1 ml	5-0-1-0-0
142					

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
143	PROD-00081	FORMULATION		0.1 ml or 0.1 g	5-0-1-0-0
144	PROD-00110	FORMULATION		0.1 ml or 100 mg	6-0-0-0-0
145	HZN-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	1-0-0-2-0
146	HZW-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	1-0-1-1-0
147	HZR-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	2-0-0-1-0
148	HZV-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	2-0-0-1-0
149	HZC-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	2-0-1-0-0
150	HZA-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	2-0-2-2-0
151	HZF-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	2-0-2-2-0
152	HZY-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	2-0-2-2-0
153	HZB-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-0-0
154	HZG-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	3-0-0-0-0
155	HZM-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	3-0-0-0-0
156	HZL-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	3-0-0-3-0
157	HZI-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	3-0-1-2-0
158	HZS-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	3-0-1-2-0
159	HZX-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	3-0-1-2-0
160	HZR	FORMULATION	CLEANERS	0.1 ml	4-0-1-1-0
161	HZK-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	5-0-0-1-0
162	Triton X-100	ETHER		0.1 ml	1-2-3-0-0
163	Sodium lauryl sulfate	SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml	1-1-2-2-0
164	Sodium lauryl sulfate	SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml	0-1-3-2-0
165	Mebrophen hydramine HCl	ETHER, AMINE, SALT		0.1 ml or 100 mg	1-0-0-0-0
166	tetra-N-Octylammonium bromide	ONIUM		0.1 ml or 100 mg	1-0-0-0-0
167	Isopropyl dicyanamide	AMINE, NITRILE		0.1 ml or 100 mg	1-0-0-0-0
168	1-(3,4-Dichlorophenyl)-5-isopropylbiguanide HCl	AMIDINE		0.1 ml or 100 mg	1-0-0-0-0
169	2-Nitro-4-thiocyananiline	NITRO COMPOUND, AMINE, SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	1-0-0-0-0
170	Iodine chloride with pyridine (1:1)	HETEROCYCLE		0.1 ml (46 mg)	1-0-0-0-0
171	sodium dicyanamide	AMIDE		0.1 ml or 100 mg	1-0-0-0-0
172	2-Methylbutyric acid	CARBOXYLIC ACID	SOLVENT	0.005 ml	1-1-0-4-0
173	1-Naphthalene acetic acid (solid)	CARBOXYLIC ACID, POLYCYCLIC COMPOUNDS		100 mg	1-1-3-1-0
174	PROD-00159	FORMULATION		0.1 ml or 100 mg	2-0-3-0-1
175	TNO-92	FORMULATION		0.1 ml or 0.1 g	1-0-0-0-0
176	TNO-93	FORMULATION		0.1 ml or 0.1 g	1-0-0-0-0
177	TNO-28	FORMULATION		0.1 ml or 0.1 g	1-0-0-0-2
178	Sodium lauryl sulfate	SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml	0-0-1-1-1
179	n-Butanol	ALCOHOL		0.1 ml	0-0-3-1-0
180	Pyridine	HETEROCYCLE		0.1 ml	0-1-2-0-0
181	iso-Butanol	ALCOHOL		0.1 ml	0-1-3-0-0
182	Diethylethanolamine	AMINE, ALCOHOL		0.005 ml	1-0-5-0-0
183	Cetylpyridinium bromide	ONIUM, HETEROCYCLE		0.1 ml	0-1-5-0-0
184	Benzalkonium chloride	ONIUM	SOAPS AND SURFACTANTS	0.1 ml	1-0-2-0-1
185	Triton X-100	ETHER		0.1 ml	0-0-2-4-0
186	Igepon AC-78	CARBOXYLIC ACID, SALT, ESTER, SULFUR COMPOUND, ORGANIC		0.1 ml	0-0-6-0-0
187	Igepon AC-78	CARBOXYLIC ACID, SALT, ESTER, SULFUR COMPOUND, ORGANIC		0.1 ml	1-0-4-1-0
188	Deoxycholic Acid Sodium Salt	POLYCYCLIC COMPOUNDS, ALCOHOL, CARBOXYLIC ACID, SALT		0.1 ml	0-0-2-1-0
189	Octanol	ALCOHOL		0.1 ml	0-0-0-3-0

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
190	Ethanol	ALCOHOL		0.1 ml	0-0-1-1-1
191	PROD-00161	FORMULATION		0.1 ml or 100 mg	0-0-1-1-1
192	Ethanol	ALCOHOL		0.1 ml	0-0-2-0-1
193	Methyl cyanoacetate	ESTER,NITRILE		0.1 ml	0-0-2-1-0
194	n-Octanol	ALCOHOL		0.1 ml	0-0-2-1-0
195	g-Butyrolactone	HETEROCYCLE,LACTONE		0.1 ml	0-0-2-1-0
196	Butyrolactone	LACTONE,HETEROCYCLE		0.1 ml	0-0-2-1-0
197	o-Toluene diamine, propoxylated, ethoxylated	AMINE,ETHER	INDUSTRIAL CHEMICALS	0.1 ml	0-0-2-1-0
198	PROD-00053	FORMULATION		0.1 ml or 100 mg	0-0-2-1-0
199	gamma-(Aminocarbonyl)-N-methyl-N,N-bis(1-methylethyl)-gamma-phenyl-, iodide	ONIUM,AMIDE		0.1 ml or 100 mg	0-0-2-1-0
200	Allyl Alcohol	ALCOHOL		0.1 ml	0-0-3-0-0
201	Dibenzyl phosphate	ESTER,ORGANOPHOSPHOROUS COMPOUND		100 mg	0-0-3-0-0
202	Polyether E810	ETHER	CHEMICAL INTERMEDIATES	0.1 ml	0-0-3-0-0
203	PROD-00052	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
204	PROD-00054	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
205	2-Ethyl-1-hexanol	ALCOHOL		0.1 ml	0-0-3-1-0
206	Amway Redu dye stain remover	FORMULATION	DETERGENTS	100 mg	0-0-3-2-1
207	Acetone	KETONE		0.1 ml	0-0-4-0-0
208	Benzotrichloride	HYDROCARBONS, CYCLIC		0.1 ml	0-0-4-0-2
209	Insect repellent formulation 1-2	FORMULATION	INSECT REPELLENT	0.1 ml	0-0-4-1-1
210	Insect repellent formulation 1-3	FORMULATION	INSECT REPELLENT	0.1 ml	0-0-4-2-0
211	PROD-00144	FORMULATION		0.1 ml or 100 mg	0-0-5-1-0
212	2,6-Dichlorobenzoyl chloride	ACYL HALIDES		0.1 ml	0-0-6-0-0
213	PROD-00148	FORMULATION		0.1 ml or 100 mg	0-0-6-0-0
214	4-Carboxybenzaldehyde	CARBOXYLIC ACID,ALDEHYDES		0.1 ml	0-1-1-1-0
215	PROD-00166	FORMULATION		0.1 ml or 100 mg	0-1-1-1-0
216	Iso-Propanol	ALCOHOL		0.1 ml	0-1-2-0-1
217	Methyl ethyl ketone	KETONE		0.1 ml	0-1-2-0-1
218	n-Hexanol	ALCOHOL		0.1 ml	0-1-3-0-0
219	Methyl acetate	ESTER		0.1 ml	0-1-3-0-0
220	PROD-00155	FORMULATION		0.1 ml or 100 mg	1-0-4-0-1
221	PROD-00158	FORMULATION		0.1 ml or 100 mg	1-0-4-1-0
222	Ethanol	ALCOHOL		0.1 ml	1-0-5-0-0
223	Insect repellent benchmark (Group 1)	FORMULATION	INSECT REPELLENT	0.1 ml	1-0-5-0-0
224	Insect repellent formulation 1-1	FORMULATION	INSECT REPELLENT	0.1 ml	1-0-5-0-0
225	TNO-29	FORMULATION		0.1 ml or 100 mg	0-0-1-1-1
226	TNO-55	FORMULATION		0.1 ml or 100 mg	0-0-2-0-1
227	Wessalith Slurry	UNKNOWN		0.1 ml or 100 mg	0-0-2-0-1
228	PROD-00151	FORMULATION		0.1 ml or 100 mg	0-0-2-1-0
229	TNO-68	FORMULATION		0.1 ml or 100 mg	0-0-2-1-0
230	PROD-00086 BASE-00088	FORMULATION		0.1 ml or 100 mg	0-0-2-2-2
231	PROD-00122	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
232	TNO-2	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
233	TNO-4	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
234	TNO-52	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
235	TNO-70	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0
236	TNO-73	FORMULATION		0.1 ml or 100 mg	0-0-3-0-0

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
237	Kuppler 43	UNKNOWN		0.1 ml or 100 mg	0-0-3-0-0
238	PROD-00067	FORMULATION		0.1 ml or 100 mg	0-0-3-2-1
239	PROD-00137	FORMULATION		0.1 ml or 100 mg	0-0-4-1-1
240	PROD-00152	FORMULATION		0.1 ml or 100 mg	0-0-4-2-0
241	PROD-00087	FORMULATION		0.1 ml or 100 mg	0-0-6-0-0
242	PROD-00181	FORMULATION	FRAGRANCES,COSMETICS	0.1 ml	1-0-4-0-1
243	Sodium hydroxide	ALKALIS		0.1 ml	0-0-1-3-0
244	Hexyl cinnamic aldehyde	ALDEHYDES		0.1 ml	0-0-0-0-3
245	Hexyl cinnamic aldehyde	ALDEHYDES		0.1 ml	0-0-0-2-1
246	Glycolic acid	CARBOXYLIC ACID,ALCOHOL		0.1 ml	0-0-0-2-1
247	Monoethanolamine	ALCOHOL,AMINE,HYDROCARBON		0.1 ml	0-0-0-3-0
248	N-Lauroylsarcosine sodium salt	AMIDE,AMINE, SALT		0.1 ml	0-0-1-2-0
249	2-Methyl-1-pentanol	ALCOHOL		0.1 ml	0-0-0-2-1
250	3-Chloropropionitrile	NITRILE		0.1 ml	0-0-0-2-1
251	Ethyl-2-methyl acetoacetate	KETONE,ESTER		0.1 ml	0-0-0-2-1
252	2,6-Dichloro-5-fluoro-beta-oxo-3-pyridinepropanoate	ESTER,KETONE,HETEROCYCLE		0.1 ml or 100 mg	0-0-0-2-1
253	Lupranol 3402	AMINE,ETHER	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-3-0
254	PROD-00049	FORMULATION		0.1 ml or 100 mg	0-0-0-3-0
255	PROD-00050	FORMULATION		0.1 ml or 100 mg	0-0-0-3-0
256	PROD-00051	FORMULATION		0.1 ml or 100 mg	0-0-0-3-0
257	di-Isopropyl aminoethylidiphenyl acetamide	AMINE,AMIDE		0.1 ml or 100 mg	0-0-0-3-0
258	Butyl Dipropasol Solvent	ALCOHOL,ETHER		0.1 ml	0-0-0-4-2
259	6-Methyl Purine	HETEROCYCLE		0.1 ml	0-0-0-6-0
260	3,3-Dithiopropionic Acid	CARBOXYLIC ACID,ORGANOSILICON COMPOUND		100 mg	0-0-1-2-0
261	Ammonium nitrate	ONIUM,NITRATE		100 mg	0-0-1-2-0
262	Cyclopentanol	ALCOHOL		0.1 ml	0-0-1-2-0
263	Propasol Solvent P	ALCOHOL		0.1 ml	0-0-1-4-1
264	Aryl phosphonates	UNKNOWN	PETROLEUM PRODUCTS	0.1 ml	0-1-0-5-0
265	Chlorhexidine gluconate	AMIDINE,ESTER		0.1 ml	0-0-1-2-0
266	HZW-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-4-2
267	Sodium N-lauroyl sarcosinate	AMIDE,SALT, ORGANIC,AMINO ACIDS	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-1-2
268	Alcohol SDA 39C	ALCOHOL		0.1 ml	0-0-0-3-0
269	2-Methyl-2-butanone-(4-sulfonamidophenyl) hydrazone	AMIDE,SULFUR COMPOUND, ORGANIC		100 mg	0-0-0-3-0
270	n-Butanal	ALDEHYDES		liquid	0-0-0-2-1
271	Isopropyl acetoacetate	KETONE,ESTER		0.1 ml or 100 mg	0-0-0-2-1
272	Acetoacetic acid glycolester	KETONE,ESTER		0.1 ml or 100 mg	0-0-0-2-1
273	Isobutanal	ALDEHYDES		0.1 ml or 100 mg	0-0-0-2-1
274	TNO-27	FORMULATION		0.1 ml or 100 mg	0-0-0-2-1
275	TNO-54	RAW MATERIAL		0.1 ml or 100 mg	0-0-0-2-1
276	TNO-37	FORMULATION		0.1 ml or 100 mg	0-0-0-2-1
277	TNO-56	FORMULATION		0.1 ml or 100 mg	0-0-0-2-1
278	2-Pseudoionon	UNKNOWN		0.1 ml or 100 mg	0-0-0-2-1
279	1,4-Dibutoxy-benzene	ETHER		0.1 ml or 100 mg	0-0-0-3-0
280	Sodium monochloroacetate	SALT, ORGANIC,CARBOXYLIC ACID, SALT		solid	0-0-0-3-0
281	p-Nitrobenzoic acid	CARBOXYLIC ACID,NITRO COMPOUND		solid	0-0-0-3-0
282	Methyl acetate	ESTER		liquid	0-0-0-3-0
283	Camphen	HYDROCARBONS, CYCLIC		solid	0-0-0-3-0
284	m-Dinitrobenzene	NITRO COMPOUND		solid	0-0-0-3-0
285	TNO-78	RAW MATERIAL		0.1 ml or 100 mg	0-0-0-3-0
286	TNO-83	FORMULATION		0.1 ml or 100 mg	0-0-0-3-0
287	PROD-00092	FORMULATION		0.1 ml or 100 mg	0-0-0-4-2
288	PROD-00059	FORMULATION		0.1 ml or 100 mg	0-0-0-4-2
289	PROD-00086	FORMULATION		0.1 ml or 100 mg	0-0-1-4-1
290	PROD-00180	FORMULATION	COSMETICS	0.1 ml	0-0-2-4-0

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
291	PROD-00123	FORMULATION		0.1 ml or 100 mg	1-0-0-4-1
292	HZD-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-3-0
293	HZU-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-3-0
294	Triton X-100	ETHER		0.1 ml	0-0-0-0-6
295	Trichloroacetic acid	CARBOXYLIC ACID		0.1 ml	0-0-0-0-6
296	Sodium lauryl sulfate	SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml	0-0-0-1-5
297	Hexyl cinnamic aldehyde	ALDEHYDES		0.1 ml	0-0-0-0-3
298	Bicyclo [2,2,1]hept-5-ene-2-carbonitrile (P30671)	NITRILE		0.1 ml	0-0-0-0-6
299	22-L	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
300	Cetylpyridinium bromide	ONIUM, HETEROCYCLE		0.1 ml	0-0-0-0-6
301	Igepon AC-78	CARBOXYLIC ACID, SALT, ESTER, SULFUR COMPOUND, ORGANIC		0.1 ml	0-0-0-0-6
302	Sodium lauryl sulfate	SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml	0-0-0-0-3
303	Sodium lauryl sulfate	SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml	0-0-0-0-3
304	22-D	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
305	22-O	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
306	Triethanolamine	AMINE, ALCOHOL		0.1 ml	0-0-0-0-3
307	Ethanol	ALCOHOL		0.1 ml	0-0-0-0-3
308	Polyoxyethylene 23 lauryl ether (BRIJ-35)	ALCOHOL		0.1 ml	0-0-0-0-3
309	MYRJ-45	ALCOHOL		0.1 ml	0-0-0-0-3
310	Triton X-155	ETHER, ALCOHOL		0.1 ml	0-0-0-0-3
311	22-A	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
312	22-B	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
313	22-C	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
314	22-E	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
315	22-F	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
316	22-H	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
317	22-I	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
318	22-K	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
319	22-N	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
320	p-tert-Butylbenzoic acid, triethanolamine salt	ALCOHOL, SALT, ORGANIC		0.1 ml	0-0-0-0-6
321	Diisopropanolamine	ALCOHOL, AMINE		0.1 ml	0-0-0-1-2
322	Triethanolamine	AMINE, ALCOHOL		0.1 ml	0-0-0-0-3
323	Triethanolamine	AMINE, ALCOHOL		0.1 ml	0-0-0-0-3
324	Vinyl tris (beta-methoxyethoxy) silane	ETHER, ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
325	1-Nitropropane	HYDROCARBON, ACYCLIC, NITRO COMPOUND		0.1 ml	0-0-0-0-3
326	Methyl iso-butyl ketone	KETONE		0.1 ml	0-0-0-0-3
327	Di-iso-butyl ketone	KETONE		0.1 ml	0-0-0-0-3
328	1,3-Dibromopropane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
329	2-Methoxyethanol	ALCOHOL		0.1 ml	0-0-0-0-3
330	Furan	HETEROCYCLE		0.1 ml	0-0-0-0-3

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
331	1,4-Dibromobutane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
332	n-Amyl bromide	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
333	Hexane	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-3
334	2-Ethoxyethanol	ALCOHOL		0.1 ml	0-0-0-0-3
335	1,5-Dibromopentane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
336	n-Hexyl bromide	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
337	Thiodiglycol	ALCOHOL, SULFUR CONTAINING COMPOUNDS		0.1 ml	0-0-0-0-3
338	n-Octyl bromide	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
339	3,4-Dimethoxybenzaldehyde	ALDEHYDES		0.1 ml or 100 mg	0-0-0-0-3
340	2,4-Pentanedione	KETONE		0.1 ml	0-0-0-0-3
341	Carsonon N-9			0.1 ml	0-0-0-0-3
342	Nonyl methacrylate	ESTER		0.1 ml	0-0-0-0-3
343	Iron pentacarbonyl	INORGANIC CHEMICAL		0.1 ml	0-0-0-0-3
344	Potassium tetrafluoroborate	SALT, INORGANIC		100 mg	0-0-0-0-3
345	Ethyl Acetoacetate	CARBOXYLIC ACID, KETONE		0.1 ml	0-0-0-0-3
346	Ethylthioethyl methacrylate	ESTER, SULFUR COMPOUND, ORGANIC, ETHER		0.1 ml	0-0-0-0-3
347	2-(n-Dodecylthio)ethanol	ALCOHOL, ETHER, SULFUR COMPOUND, ORGANIC		100 mg	0-0-0-0-3
348	2-Nitro-4-propoxyaniline	NITRO COMPOUND, AMINE, ETHER		0.1 ml or 100 mg	0-0-0-0-3
349	2-(Acetyloxy)-1-phenylethanone	KETONE, ESTER		0.1 ml or 100 mg	0-0-0-0-3
350	2-Ethoxyethyl methacrylate	ESTER, ETHER		0.1 ml	0-0-0-0-3
351	iso-Octylthioglycolate	ESTER, SULFUR COMPOUND, ORGANIC		0.1 ml	0-0-0-0-3
352	3-Glycidoxypropyltrimethoxysilane	ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
353	gamma-Glycidyoxypropyltrimethoxy silane	ETHER, ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
354	gamma-Methacryloxypropyltrimethoxy silane	ESTER, ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
355	Propylidynetrimethanol, propoxylated	ETHER	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
356	Polyol 355 UCB	ETHER	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
357	Glycerol tri-iso-stearate	ESTER		0.1 ml	0-0-0-0-3
358	Nonyl acrylate	ESTER		0.1 ml	0-0-0-0-3
359	Dynasylan VPS 8815	AMINE, ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
360	Iso-stearyl alcohol	ALCOHOL		0.1 ml	0-0-0-0-3
361	Vinyltrimethoxy silane	ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
362	Iso-octyl acrylate	ESTER		0.1 ml	0-0-0-0-3
363	iso-Stearic acid	CARBOXYLIC ACID		0.1 ml	0-0-0-0-3
364	2-(4-Oxopentyl)-1H-isoindole-1,3 (2H)-dione	HETEROCYCLE		0.1 ml or 100 mg	0-0-0-0-3
365	Myristyl myristate	ESTER		0.1 ml (87 mg)	0-0-0-0-3
366	p-Methylthiobenzaldehyde	ALDEHYDES, SULFUR COMPOUND, ORGANIC, ETHER		0.1 ml	0-0-0-0-3
367	Perfluoro-n-hexane	HYDROCARBONS, HALOGENATED	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
368	Perfluoro-n-hexane	HYDROCARBONS, HALOGENATED	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
369	Ethyltriethyl glycol methacrylate	ESTER, ETHER		0.1 ml	0-0-0-0-3
370	2,2',2''-Nitrilotriethanol, propoxylated	AMINE, ALCOHOL, ETHER	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
371	Trifluoroethyl methacrylate	ESTER		0.1 ml	0-0-0-0-3
372	gamma-Mercaptopropyltrimethoxy silane	ORGANOSILICON COMPOUND, SULFUR COMPOUND, ORGANIC		0.1 ml	0-0-0-0-3

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
373	Polyol XZ 95435.00	ALCOHOL,ETHER	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
374	Iso-myristyl alcohol	ALCOHOL		0.1 ml	0-0-0-0-3
375	tetra-Aminopyrimidine sulfate	AMINE,HETEROCYCLE,SALT,INORGANIC		100 mg	0-0-0-0-3
376	Heptyl methacrylate	ESTER		0.1 ml	0-0-0-0-3
377	1-(4-Phenyl-phenoxy)-1-(1,2,4-triazole-1)-3,3-dimethylbutan	HETEROCYCLE		0.1 ml	0-0-0-0-3
378	3,3-Dimethylpentane	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-3
379	4-Bromophenetole	ETHER		0.1 ml	0-0-0-0-3
380	Dimethyl carbonate	CARBOXYLIC ACID		0.1 ml or 100 mg	0-0-0-0-3
381	Polyoxyethylene hydrogenated castor oil	CARBOXYLIC ACID,ETHER	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
382	3-Methoxy-1,2-propanediol	PHENOL,ETHER		0.1 ml	0-0-0-0-3
383	2,4-Pentenediol	ALCOHOL		0.1 ml	0-0-0-0-3
384	1,6-Dibromohexane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
385	Ethyleneglycol diethyl ether	ETHER		0.1 ml	0-0-0-0-3
386	Di-n-propyl disulfide	SULFUR COMPOUND, ORGANIC		0.1 ml	0-0-0-0-3
387	Dimethylsulfoxide (DMSO)	SULFUR COMPOUND, ORGANIC		0.1 ml	0-0-0-0-3
388	Dimethylhydropolysiloxane	ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-3
389	iso-Propyl iso-stearate	ESTER		0.1 ml	0-0-0-0-3
390	1-Bromo-4-chlorobutane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
391	iso-Propyl bromide	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
392	Sodium chloride, isotonic	INORGANIC CHEMICAL	INORGANIC SALT	0.1 ml	0-0-0-0-3
393	2-Ethylhexylthioglycolate	ESTER,SULFUR COMPOUND, ORGANIC,ALCOHOL		0.1 ml	0-0-0-0-3
394	Bromo-2-butane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
395	4,4'-sulfonylbisbenzenamine	SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	0-0-0-0-3
396	Petroleum Ether	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-3
397	Polyoxyethylene sorbitan monolaurate	ESTER,ETHER	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
398	Pentaerythritol, propoxylated	ORGANOPHOSPHATE	INDUSTRIAL CHEMICALS	0.1 ml	0-0-0-0-3
399	1H-Indole-2,3-dione	HETEROCYCLE		0.1 ml or 100 mg	0-0-0-0-3
400	1,2,4-Trimethylbenzene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-3
401	1,2,3-trichloropropane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
402	Dichlorotoluenes	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-3
403	Cutting fluid concentrate (337)	FORMULATION	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-3
404	2-Chloro-2,4,4-trimethylpentane	HYDROCARBONS, HALOGENATED	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-3
405	Aromatic hydrocarbon (750)	AROMATIC HYDROCARBON	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-3
406	Aromatic hydrocarbon (749)	AROMATIC HYDROCARBON	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-3
407	PROD-00295	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
408	PROD-00160	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
409	PROD-00162	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
410	PROD-00165	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
411	PROD-00167	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
412	PROD-00171	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
413	PROD-00174	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
414	PROD-00176	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
415	PROD-00177	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
416	PROD-00178	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml or 100 mg	0-0-0-0-3
417	5-Chloro-3-methylbenzo[b]thiophene-2-sulfonyl chloride	HETEROCYCLE,SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	0-0-0-0-3
418	1-(5-Amino-2-methoxyphenyl) piperazine hydrochloride	HETEROCYCLE,AMINE, SALT,ETHER		0.1 ml or 100 mg	0-0-0-0-3
419	5-Chloro-2,4-disulfamoyl chloroacetanilide	AMIDE		0.1 ml or 100 mg	0-0-0-0-3
420	3-((Benzylthio)methyl)-6-chloro-,1,1-dioxide	ETHER,SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	0-0-0-0-3
421	Toilet bowl cleaner	FORMULATION	CLEANERS	0.1 ml	0-0-0-0-3
422	Perfecto Petrolatum	UNKNOWN		0.1 ml	0-0-0-0-3
423	CNF-579	FORMULATION		0.1 ml	0-0-0-0-3
424	Polyethyleneglycol monolaurate	SURFACTANT, ANIONIC,ALCOHOL	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
425	22-A	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
426	22-B	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
427	22-F	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
428	22-H	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
429	22-J	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
430	22-K	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
431	22-M	UNKNOWN	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-3
432	Styrene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-4
433	Methyl iso-butyl ketone	KETONE		0.1 ml	0-0-0-0-4
434	Methyl amyl ketone	KETONE		0.1 ml	0-0-0-0-4
435	n-Butyl acetate	ESTER		0.1 ml	0-0-0-0-4
436	Xylene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-4
437	Ethyl acetate	ESTER		0.1 ml	0-0-0-0-4
438	Tween 20	ESTER,ETHER		0.1 ml	0-0-0-0-4
439	PROD-00005 BASE-00005	FORMULATION		0.1 ml or 100 mg	0-0-0-0-5
440	Triphenyl Phosphite	ORGANOPHOSPHOROUS COMPOUND		0.1 ml	0-0-0-0-6
441	2-Methoxy-3,4-Dihydropyran	HETEROCYCLE,ETHER		0.1 ml	0-0-0-0-6
442	Silicone Y-4081	ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-6
443	2-Methylpentane	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
444	Dodecane	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
445	Octadecyl isocyanate	ISOCYANATES		0.1 ml	0-0-0-0-6
446	4,4-Methylene bis-(2,6-di-tert-butyl phenol)	PHENOL		0.1 ml	0-0-0-0-6
447	Fungitrol zinc 8% fungicide	SALT, ORGANIC,CARBOXYLIC ACID, SALT		0.1 ml	0-0-0-0-6
448	Tricresylphosphate	ESTER,ORGANOPHOSPHOROUS COMPOUND		0.1 ml	0-0-0-0-6
449	1-Methylpropyl benzene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-6
450	1,9-Decadiene	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
451	Polymethylenepolyphenylenepolyamine	AMINE		0.1 ml	0-0-0-0-6
452	3-Mercaptopropyl trimethoxy silane	ETHER		0.1 ml	0-0-0-0-6
453	g-Chloropropyltrimethoxy silane	ETHER		0.1 ml	0-0-0-0-6
454	Polyethylene glycol 400	ALCOHOL,ETHER		0.1 ml	0-0-0-0-6
455	Polyethylene glycol 600	ALCOHOL,ETHER		0.1 ml	0-0-0-0-6
456	Triisodecyl Phosphite	ESTER		0.1 ml	0-0-0-0-6
457	Organofunctional Silane 53-98	AMINE,ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-6
458	Chlorpyrifos	ORGANOPHOSPHOROUS COMPOUND		0.1 ml	0-0-0-0-6
459	Triethoxyoctylsilane	ORGANOSILICON COMPOUND		0.1 ml	0-0-0-0-6
460	1,5-Dimethyl cyclo-octadiene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-6
461	2,3-Dimethyl 2,3-dinitrobutane	NITRO COMPOUND		100 mg	0-0-0-0-6
462	Benzoflex S-312	ESTER		0.1 ml	0-0-0-0-6
463	3-Chloro-4-fluoronitrobenzene	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-6
464	Brodifacoum	HETEROCYCLE,ALCOHOL, LACTONE		0.1 ml	0-0-0-0-6
465	Glycerol	ALCOHOL		0.1 ml	0-0-0-0-6
466	Propylene glycol	ALCOHOL		0.1 ml	0-0-0-0-6
467	3-Methylhexane	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
468	1,5-Hexadiene	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
469	Methyl trimethyl acetate	ESTER		0.1 ml	0-0-0-0-6

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
470	3-Ethyl toluene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-6
471	Amyl acetate	ALCOHOL		0.1 ml	0-0-0-0-6
472	Dow Corning X201133 Heat Transfer Fluid	FORMULATION		0.1 ml	0-0-0-0-6
473	Clarified slurry oil	HYDROCARBON, ACYCLIC, HYDROCARBONS, CYCLIC	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-6
474	C6 alpha olefin	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
475	C10 alpha olefins	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
476	C16 alpha olefin			0.1 ml	0-0-0-0-6
477	Ethylene oxide	HETEROCYCLE, ETHER	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-6
478	2-Ethylhexanoyl Chloride			0.1 ml	0-0-0-0-6
479	Kerosine	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
480	Igepal CO-990	ETHER		0.1 ml	0-0-0-0-6
481	cis-Cyclo-octene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-6
482	Vinyl 2-ethylhexanoate	ESTER		0.1 ml	0-0-0-0-6
483	Allyl methacrylate	ESTER		0.1 ml	0-0-0-0-6
484	1,2,3-trichloropropane	HYDROCARBONS, HALOGENATED		0.1 ml	0-0-0-0-6
485	Methyl cyclopentane	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-6
486	p-Chlorobenzotrifluoride	HYDROCARBONS, HALOGENATED		0.1 ml or 100 mg	0-0-0-0-6
487	Nitrobenzene	HYDROCARBON, ACYCLIC, NITRO COMPOUND		0.1 ml	0-0-0-0-6
488	1,3-Di-iso-propyl benzene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-0-6
489	C12-16 blend alpha olefin	HYDROCARBON, ACYCLIC		0.1 ml	0-0-0-0-6
490	Methyl cyclopentadiene dimer	CYCLIC HYDROCARBON	PETROLEUM PRODUCTS	0.1 ml	0-0-0-0-6
491	PROD-00292	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
492	PROD-00294 BASE-00294	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
493	PROD-00291	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
494	Insect repellent formulation 2-4	FORMULATION	INSECT REPELLENT	0.1 ml	0-0-0-0-6
495	Insect repellent formulation 2-7	FORMULATION	INSECT REPELLENT	0.1 ml	0-0-0-0-6
496	Insect repellent formulation 2-8	FORMULATION	INSECT REPELLENT	0.1 ml	0-0-0-0-6
497	Kronitex CDP	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
498	Kronitex TCP	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
499	Kronitex TXP	FORMULATION		0.1 ml	0-0-0-0-6
500	Kronitex TXP	FORMULATION		0.1 ml	0-0-0-0-6
501	Kronitex 50	FORMULATION		0.1 ml	0-0-0-0-6
502	Kronitex 100	FORMULATION		0.1 ml	0-0-0-0-6
503	Kronitex 200	FORMULATION		0.1 ml	0-0-0-0-6
504	Kronitex 300	FORMULATION		0.1 ml	0-0-0-0-6
505	Kronitex 200B	FORMULATION		0.1 ml	0-0-0-0-6
506	MP-600	FORMULATION		0.1 ml	0-0-0-0-6
507	Kronitex Blend Stock	FORMULATION		0.1 ml	0-0-0-0-6
508	Dequest 2016	FORMULATION		0.1 ml	0-0-0-0-6
509	Heloxy MK-107	FORMULATION		0.1 ml	0-0-0-0-6
510	Glycidyl methacrylate	ETHER		0.1 ml	0-0-0-1-2
511	Cyclohexanone	KETONE, HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-1-2
512	M-Phenoxybenzyl Alcohol	ALCOHOL, HYDROCARBONS, CYCLIC		0.1 ml	0-0-0-1-2
513	2,2-Dimethyl-3-pentanol	ALCOHOL		0.1 ml	0-0-0-1-2
514	2-Nitro-4-thio-N-propylaniline	AMINE, NITRO COMPOUND, SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	0-0-0-1-2
515	N,N-Dimethylguanidine sulfate	SALT, ORGANIC, AMIDINE		100 mg	0-0-0-1-2
516	Ethyl thioglycolate	ESTER, SULFUR COMPOUND, ORGANIC, ALCOHOL		0.1 ml	0-0-0-1-2
517	Cutting fluid concentrate (333)	FORMULATION	PETROLEUM PRODUCTS	0.1 ml	0-0-0-1-2

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
518	PROD-00169	FORMULATION		0.1 ml or 100 mg	0-0-0-1-2
519	6-(Methylamino)-2-pyridine ethanol formate (1:1) (salt)	HETEROCYCLE,AMINE,CARBOXYLIC ACID, SALT		0.1 ml or 100 mg	0-0-0-1-2
520	CNF-580	FORMULATION		0.1 ml	0-0-0-1-2
521	Toluene	CYCLIC HYDROCARBON		0.1 ml	0-0-0-1-3
522	Methyl amyl ketone	KETONE		0.1 ml	0-0-0-1-3
523	Methylal	ETHER		0.1 ml	0-0-0-1-5
524	Methylal	ETHER		0.1 ml	0-0-0-1-5
525	Ethyl trimethyl acetate	ESTER		0.1 ml	0-0-0-1-5
526	p-tert-Butylbenzoic acid, triethanolamine salt	ALCOHOL, SALT, ORGANIC		0.1 ml	0-0-0-1-5
527	C-150	UNKNOWN		0.1 ml	0-0-0-1-5
528	PROD-00143	FORMULATION		0.1 ml or 100 mg	0-0-0-2-4
529	Propylene glycol monomethyl ether	ETHER,ALCOHOL	SOLVENT	0.1 ml	0-0-0-2-4
530	3-Hydroxy-2-phenyl-4-quinolinecarboxylic acid	HETEROCYCLE,CARBOXYLIC ACID,ALCOHOL		0.1 ml or 100 mg	0-0-1-0-2
531	Methanol	ALCOHOL		0.1 ml	0-0-1-0-2
532	Cellosolve acetate	ESTER,ETHER		0.1 ml	0-0-1-0-3
533	Xylene	HYDROCARBONS, CYCLIC		0.1 ml	0-0-1-0-3
534	Fomesafen, acid form (solid)	IMIDE,ETHER,NITRO COMPOUND		100 mg	0-0-1-0-5
535	Iqepal CO-720	ALCOHOL,ETHER		0.1 ml	0-0-1-0-5
536	Anthracene	POLYCYCLIC COMPOUNDS		100 mg	0-0-0-0-3
537	2-Mercaptopyrimidine	HETEROCYCLE		100 mg	0-0-0-0-3
538	Aluminum hydroxide	ALKALIS,ALUMINUM COMPOUNDS		100 mg	0-0-0-0-3
539	Ethylenediaminetetraacetate Di-K Salt	AMINE,CARBOXYLIC ACID, SALT		100 mg	0-0-0-0-3
540	2,4-Dichloro-5-sulfamoyl-benzoic acid	AMIDE,SULFUR COMPOUND, ORGANIC		100 mg	0-0-0-0-3
541	Iminodibenzyl	HETEROCYCLE		100 mg	0-0-0-0-3
542	Phenylbutazone	HETEROCYCLE		100 mg	0-0-0-0-3
543	Magnesium Carbonate	SALT, INORGANIC		100 mg	0-0-0-0-3
544	Betaine monohydrate	AMINO ACIDS,ONIUM		100 mg	0-0-0-0-3
545	DL Glutamic Acid	AMINO ACIDS		100 mg	0-0-0-0-3
546	Gluconolactone	LACTONE,CARBOXYLIC ACID,CARBOHYDRATE		100 mg	0-0-0-0-3
547	1-Phenyl-3-pyrazolidone	HETEROCYCLE		100 mg	0-0-0-0-3
548	Propyl-4-Hydroxybenzoate	CARBOXYLIC ACID,PHENOL		100 mg	0-0-0-0-3

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
549	2-Aminophenol	AMINE,PHENOL		100 mg	0-0-0-0-3
550	Tetraaminopyrimidine Salt	HETEROCYCLE,AMINE, SALT		100 mg	0-0-1-0-2
551	Dimethylbiquanide	AMIDINE		100 mg	0-0-0-0-3
552	HZM-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-0-6
553	HZN-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-0-6
554	HZG-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-0-6
555	HZV-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-1-5
556	HZD-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-1-5
557	HZB-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-2-4
558	HZU-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-2-4
559	Sodium polyoxyethylene laurylether sulfate	ALCOHOL,SALT, ORGANIC,ETHER		0.1 ml	0-0-0-0-3
560	Triethanolamine Orthovanadate	ALCOHOL,AMINE, SALT		0.1 ml	0-0-0-0-6
561	Triethanolamine Orthovanadate	ALCOHOL,AMINE, SALT		0.1 ml	0-0-0-0-6
562	5% Ivory soap solution	FORMULATION		0.1 ml	0-0-0-0-6
563	TNO-69	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
564	3H-Pyrazole-3-one, 2(4-aminophenyl),4-dihydro-5-(1-pyrrolindinyl)	AMINE,HETEROCYCLE		100 mg	0-0-0-0-3
565	Disperse red 60	AMINE,PHENOL,QUINONES		100 mg	0-0-0-0-6
566	Hexamethylenetetramine	AMINE		0.1 ml or 100 mg	0-0-0-0-3
567	Phenylthiourea	SULFUR COMPOUND, ORGANIC,UREA		0.1 ml or 100 mg	0-0-0-0-3
568	4-Aminoazobenzene-4-sulphonic acid	SULFUR COMPOUND, ORGANIC,AMINE		0.1 ml or 100 mg	0-0-0-0-3
569	1,2,6-Hexanetriol	ALCOHOL		0.1 ml or 100 mg	0-0-0-0-3
570	5-Methyl-1,3,4-thiadiazol-2-amine	AMINE,HETEROCYCLE,SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	0-0-0-0-3
571	Trioxane	HETEROCYCLE,ETHER		0.1 ml or 100 mg	0-0-0-0-3
572	Methyltriglycol	ALCOHOL,ETHER		0.1 ml or 100 mg	0-0-0-0-3
573	Genomoll	ESTER,ORGANOPHOSPHOROUS COMPOUND		0.1 ml or 100 mg	0-0-0-0-3
574	Isobornyl acetate	ESTER		0.1 ml or 100 mg	0-0-0-0-3
575	2-Hydroxyethyliminodisodiumacetate	AMINE,ALCOHOL,SALT, ORGANIC		0.1 ml or 100 mg	0-0-0-0-3
576	4-Chloro-4-nitrodiphenylether	ETHER		solid	0-0-0-0-3
577	TNO-61	NITRO COMPOUND		0.1 ml or 100 mg	0-0-0-0-3
578	Cerium-2-ethylhexanoate	SALT, ORGANIC,CARBOXYLIC ACID, SALT		0.1 ml or 100 mg	0-0-0-0-3
579	Polyethyleneglycoldimethylether	ETHER		0.1 ml or 100 mg	0-0-0-0-3
580	Triisooctylamine	AMINE		0.1 ml or 100 mg	0-0-0-0-3
581	Silan 165	ORGANOSILICON COMPOUND		0.1 ml or 100 mg	0-0-0-0-3
582	Silan 108	ORGANOSILICON COMPOUND		0.1 ml or 100 mg	0-0-0-0-3
583	Isononylaldehyde	ALDEHYDES		0.1 ml or 100 mg	0-0-0-0-3
584	Xanthinol nicotinate	AMINE,HETEROCYCLE,ALCOHOL		0.1 ml or 100 mg	0-0-0-0-3
585	TNO-62	CARBOXYLIC ACID		0.1 ml or 100 mg	0-0-0-0-3
586	Hexahydrofarnesylacetone	KETONE		0.1 ml or 100 mg	0-0-0-0-3
587	Potato starch	ALCOHOL,ONIUM,CARBOHYDRATE		0.1 ml or 100 mg	0-0-0-0-3
588	m-Methoxybenzaldehyde	ALDEHYDES,ETHER		0.1 ml or 100 mg	0-0-0-0-3
589	4,4-Dimethyl-3-oxopentenenitrile	KETONE,NITRILE		0.1 ml or 100 mg	0-0-0-0-3
590	Isotridecanal	ALDEHYDES		0.1 ml or 100 mg	0-0-0-0-3
591	Genagen	ESTER,ETHER		0.1 ml or 100 mg	0-0-0-0-3
592	Methyletraglycol	ETHER		0.1 ml or 100 mg	0-0-0-0-3
593	PROD-00295	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
594	PROD-00085	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
595	PROD-00096	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
596	PROD-00073	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
597	PROD-00076	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
598	PROD-00119	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
599	PROD-00131	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
600	PROD-00150	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
601	TNO-3	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
602	TNO-5	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
603	TNO-6	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
604	TNO-7	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
605	TNO-8	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
606	TNO-10	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
607	TNO-12	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
608	TNO-13	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
609	TNO-14	CARBOHYDRATE		0.1 ml or 100 mg	0-0-0-0-3
610	TNO-15	CARBOHYDRATE		0.1 ml or 100 mg	0-0-0-0-3
611	TNO-17	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
612	TNO-18	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
613	TNO-19	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
614	TNO-20	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
615	TNO-21	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
616	TNO-22	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
617	TNO-23	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
618	TNO-24	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
619	TNO-25	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
620	TNO-33	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
621	TNO-38	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
622	TNO-39	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
623	TNO-45	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
624	TNO-46	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
625	TNO-47	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
626	TNO-57	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
627	TNO-58	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
628	TNO-59	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
629	TNO-60	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
630	TNO-63	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
631	TNO-64	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
632	TNO-65	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
633	TNO-66	RAW MATERIAL		0.1 ml or 100 mg	0-0-0-0-3
634	TNO-71	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
635	TNO-72	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
636	TNO-74	RAW MATERIAL		0.1 ml or 100 mg	0-0-0-0-3
637	TNO-75	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
638	TNO-76	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
639	TNO-77	RAW MATERIAL		0.1 ml or 100 mg	0-0-0-0-3
640	TNO-79	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
641	TNO-80	RAW MATERIAL		0.1 ml or 100 mg	0-0-0-0-3
642	TNO-81	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
643	TNO-82	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
644	TNO-84	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
645	TNO-86	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
646	TNO-87	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
647	TNO-88	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
648	TNO-89	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
649	TNO-90	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
650	TNO-91	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
651	KWG 0519	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
652	1,6,7,12-Tetrachloro-3,4,9,10-tetracarboxylic acid anhydride			0.1 ml or 100 mg	0-0-0-0-3
653	Ede 140	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
654	Glycediol	ETHER		0.1 ml or 100 mg	0-0-0-0-3
655	Hnol	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
656	Hoe MBF	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
657	Hoe T 3761	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
658	Hypo 20	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
659	Hypo 36	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
660	Mecre	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-3
661	Nitro-bis-octylamide	NITRO COMPOUND,AMIDE		0.1 ml or 100 mg	0-0-0-0-3

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1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
662	Piperazine	HETEROCYCLE		0.1 ml or 100 mg	0-0-0-0-4
663	Theophylline sodium	HETEROCYCLE, SALT, ORGANIC		0.1 ml or 100 mg	0-0-0-0-4
664	3-5-Dihydroxyacetophenone	PHENOL, KETONE		0.1 ml or 100 mg	0-0-0-0-4
665	1-(2,6-Dimethylphenoxy)-2-propanol	ALCOHOL, ETHER		0.1 ml or 100 mg	0-0-0-0-4
666	Ambuphylline	AMINE, HETEROCYCLE, ALCOHOL		0.1 ml or 100 mg	0-0-0-0-4
667	(-)Phenylephrine	AMINE, PHENOL, ALCOHOL		0.1 ml or 100 mg	0-0-0-0-4
668	(+) Phenylephrine	AMINE, PHENOL, ALCOHOL		0.1 ml or 100 mg	0-0-0-0-4
669	Phenylephrine hydrochloride	PHENOL, ALCOHOL, CARBOXYLIC ACID, SALT		0.1 ml or 100 mg	0-0-0-0-4
670	Caffeine sodium benzoate	HETEROCYCLE, SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml or 100 mg	0-0-0-0-4
671	Caffeine sodium salicylate	HETEROCYCLE, PHENOL, CARBOXYLIC ACID, SALT		0.1 ml or 100 mg	0-0-0-0-4
672	Theophylline sodium acetate	HETEROCYCLE, SALT, ORGANIC, CARBOXYLIC ACID, SALT		0.1 ml or 100 mg	0-0-0-0-4
673	Theobromine	HETEROCYCLE		0.1 ml or 100 mg	0-0-0-0-4
674	PROD-00056	FORMULATION		0.1 ml or 100 mg	0-0-0-0-4
675	DC 8	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-4
676	Hypo 45	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-4
677	Napt	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-4
678	Phosphonat A	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-4
679	PO 2	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-4
680	TA 01946 Alkylsilan	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-4
681	PROD-00005	FORMULATION		0.1 ml or 100 mg	0-0-0-0-5
682	Hexabromocyclododecane	HYDROCARBONS, HALOGENATED		100 mg	0-0-0-0-6
683	Syltherm 444 Heat Transfer Fluid	ORGANOSILICON COMPOUND	HEAT TRANSFER FLUID	0.1 ml	0-0-0-0-6
684	TNO-31	INORGANIC CHEMICAL		0.1 ml or 100 mg	0-0-0-0-6
685	Tetrabromobisphenol A	HYDROCARBONS, CYCLIC, HYDROCARBONS, HALOGENATED		100 mg	0-0-0-0-6
686	Tetrabromobisphenol A	HYDROCARBONS, CYCLIC, HYDROCARBONS, HALOGENATED		100 mg	0-0-0-0-6
687	Igepal CO-210	ETHER		0.1 ml	0-0-0-0-6
688	Phenothiazine	AMINE, HETEROCYCLE, SULFUR COMPOUND, ORGANIC		100 mg	0-0-0-0-6
689	PROD-00292	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
690	PROD-00294	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
691	PROD-00013	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
692	PROD-00014	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
693	PROD-00183	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
694	PROD-00185	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
695	PROD-00186	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
696	PROD-00082	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
697	PROD-00083	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
698	PROD-00084	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
699	PROD-00088	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
700	PROD-00093	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
701	PROD-00065	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
702	PROD-00066	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
703	PROD-00097	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
704	PROD-00069	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
705	PROD-00100	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
706	PROD-00106	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
707	PROD-00107	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
708	PROD-00108	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
709	PROD-00113	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
710	PROD-00071	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
711	PROD-00075	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
712	PROD-00079	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
713	PROD-00080	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
714	PROD-00117	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
715	PROD-00128	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
716	PROD-00132	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
717	PROD-00133	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
718	TNO-16	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
719	TNO-26	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
720	TNO-32	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
721	TNO-53	FLUORINATED COMPOUND		0.1 ml or 100 mg	0-0-0-0-6
722	TNO-67	FORMULATION		0.1 ml or 100 mg	0-0-0-0-6
723	B 25	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-6
724	Bis-(3-triethoxisilylpropyl)-tetrasulphide	ORGANOSILICON COMPOUND,SULFUR COMPOUND, ORGANIC		0.1 ml or 100 mg	0-0-0-0-6
725	RK Blau	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-6
726	Sacyclo	UNKNOWN		0.1 ml or 100 mg	0-0-0-0-6
727	1,2-Epoxyoctane	ETHER		0.1 ml or 100 mg	0-0-0-1-2
728	Sodium bisulphite	ACID, INORGANIC,SALT, INORGANIC		0.1 ml or 100 mg	0-0-0-1-2
729	PROD-00184	FORMULATION	LOTIONS	0.1 ml	0-0-0-1-5
730	PROD-00187	FORMULATION	FRAGRANCES	0.1 ml	0-0-0-1-5
731	PROD-00103	FORMULATION		0.1 ml or 100 mg	0-0-0-1-5
732	PROD-00094	FORMULATION		0.1 ml or 100 mg	0-0-0-1-5
733	PROD-00105	FORMULATION		0.1 ml or 100 mg	0-0-0-1-5
734	PROD-00129	FORMULATION		0.1 ml or 100 mg	0-0-0-1-5
735	TNO-30	FORMULATION		0.1 ml or 100 mg	0-0-0-1-5
736	PROD-00125	FORMULATION		0.1 ml or 100 mg	0-0-0-2-4
737	Phosphoric acid, tributyl ester	ACID,ESTER		0.1 ml	0-0-1-0-2
738	PROD-00134	FORMULATION		0.1 ml or 100 mg	0-0-1-0-2
739	TNO-9	FORMULATION		0.1 ml or 100 mg	0-0-1-0-2
740	CMB	FORMULATION		0.1 ml	0-0-1-0-2
741	TNO-1	FORMULATION		0.1 ml or 100 mg	0-0-0-0-3
742	T-3752	FORMULATION		100 mg	0-0-0-0-3
743	EPIKOTE RSS 1079	ETHER		0.1 ml (70 mg)	0-0-0-0-6
744	Triethylene glycol	ALCOHOL,ETHER		0.1 ml	0-0-0-0-6
745	Tributyl phosphate	ESTER,ORGANOPHOSPHOROUS COMPOUND		0.1 ml or 100 mg	0-0-0-0-6
746	2,4-Dicyano-1-butene	NITRILE		0.1 ml	0-0-0-0-6
747	EPIKURE 1061	AMINE,AROMATIC HYDROCARBON		0.1 ml (70 mg)	0-0-0-0-6
748	EPIKURE 1062	AMINE,AROMATIC HYDROCARBON		0.1 ml (45 mg)	0-0-0-0-6
749	3-Phenoxy benzaldehyde	ALDEHYDES,ETHER		0.1 ml	0-0-0-0-6
750	HZF	FORMULATION	SUNSCREENS	0.1 ml	0-0-0-0-6
751	HZA	FORMULATION	CONDITIONERS, HAIR	0.1 ml	0-0-0-0-6
752	HZB	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
753	HZC	FORMULATION	EMOLLIENTS,CREAM	0.1 ml	0-0-0-0-6
754	HZE	FORMULATION	LOTIONS	0.1 ml	0-0-0-0-6
755	HZI	FORMULATION	CONDITIONERS, HAIR	0.1 ml	0-0-0-0-6
756	HZJ	FORMULATION	CREAM	0.1 ml	0-0-0-0-6
757	HZN	FORMULATION	LOTIONS	0.1 ml	0-0-0-0-6
758	HZO	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
759	HZP	FORMULATION	SUNSCREENS	0.1 ml	0-0-0-0-6
760	HZQ	FORMULATION	COSMETICS,LOTIONS	0.1 ml	0-0-0-0-6
761	HZS	FORMULATION	COSMETICS,CREAM	0.1 ml	0-0-0-0-6
762	HZT	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
763	HZU	FORMULATION	SUNSCREENS	0.1 ml	0-0-0-0-6
764	HZV	FORMULATION	COSMETICS,LOTIONS	0.1 ml	0-0-0-0-6
765	HZW	FORMULATION	ROLL-ON ANTIPERSPIRANTS	0.1 ml	0-0-0-0-6
766	HZY	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6
767	HZP-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-0-6
768	HZH-1	FORMULATION	SOAPS AND SURFACTANTS,COSMETICS	0.1 ml	0-0-0-0-6
769	HZJ-1	FORMULATION	SHAMPOOS, HAIR	0.1 ml	0-0-0-0-6
770	HZT-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-6
771	HZZ-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-0-6
772	T-2001CoC	FORMULATION		0.1 ml	0-0-0-0-6
773	T-3608	FORMULATION		100 mg	0-0-0-0-6
774	HZH	FORMULATION	COSMETICS	0.1 ml	0-0-0-0-6

	A	N	O	P	Q
1	SUBSTANCE NAME	CHEMICAL CLASS	PRODUCT CLASS	AMOUNT TESTED	PATTERN OF RESPONSE
775	T-3727	FORMULATION		90 mg (0.1 ml weight)	0-0-0-1-2
776	HZQ-1	FORMULATION	SOAPS AND SURFACTANTS	0.1 ml	0-0-0-1-5
777	HZL	FORMULATION	COSMETICS,OINTMENTS	0.1 ml	0-0-0-1-5
778	HZM	FORMULATION	COSMETICS,OINTMENTS	0.1 ml	0-0-0-2-4
779	<p>Abbreviations: CASRN = Chemical Abstracts Service Registry Number; CTFA = Cosmetics, Toiletory, and Fragrance Association; ECETOC = European Centre for Ecotoxicology and Toxicology of Chemicals; FDA = U.S. Food and Drug Administration; ISOPA = European Diisocyanate and Polyol Producers Association; n.a. = not applicable; n.p. = not provided; NIHS = Japanese National Institute of Health Sciences; TSCA = Toxic Substances Control Act; ZEBET = German Center for Documentation and Evaluation of Alternative Methods to Animal Experimentation.</p> <p>Animal Classification terms: Cat 1(1/3) Animal = Rabbit with (1) corneal opacity score of 4 at any time or (2) effects not expected to reverse or that do not fully reverse within 21 days with corneal opacity; Cat 1(2/3) Animal = Rabbit with mean corneal opacity score ≥ 3 and/or iritis score > 1.5 (rabbit values are averaged across observation days 1, 2, and 3); Cat2A Animal = Rabbit with mean scores (rabbit values are averaged across observation days 1, 2, and 3) for one of more of the following: (a) Iritis or Corneal opacity ≥ 1 or (b) Redness or Chemosis ≥ 2 and the effects fully reverse within 21 days; Cat2B Animal = Rabbit with mean scores (rabbit values are averaged across observation days 1, 2, and 3) for one of more of the following: (a) Iritis or Corneal opacity ≥ 1 or (b) Redness or Chemosis ≥ 2 and the effects fully reverse within 7 days; Nonirritant Animal = Rabbit mean scores fall below threshold values for Category 1, 2A, and 2B.</p> <p>Substances where the Overall classification are bolded indicate those substances where a more severe classification was observed at one concentration but a less severe classification was observed at a higher concentration (e.g., 10% concentration = Category 1 and 100% concentration = Category 2B). For the higher concentration, the classification was changed to the more severe concentration (see Section 7.0 for additional information).</p>				
780					
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APPENDIX B

SUPPORTING DATA

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Table A. Distribution of Rabbits for GHS Category 1 Substances

	Category 1 Substances
Total Number of Studies	181
Total Number of Rabbits Classified as Cat 1A	499
Total Number of Rabbits Classified as Cat 1B	50
Total Number of Rabbits Classified as Cat 2A	96
Total Number of Rabbits Classified as Cat 2B	58
Total Number of Rabbits Classified as Nonirritant	20
Total Number of Rabbits	723

Abbreviation: Cat = Category.

Table B. Distribution of Rabbit Response Patterns for GHS Category 1 Substances and the Corresponding Likelihood of Classification

Distribution of Rabbit Outcomes					Number of Studies	Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>		<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
0	0	1	1	1	1	0	0.4815	0.2593	0.2593	0
0	0	3	1	0	1	0	0.8437	0.1563	0	0
0	1	2	0	0	1	0.2593	0.7407	0	0	0
0	1	3	2	0	1	0.0741	0.6667	0.2593	0	0
0	1	3	0	0	1	0.1563	0.8437	0	0	0
0	2	0	1	0	1	0.7407	0	0.2593	0	0
0	3	0	0	0	2	1.0000	0	0	0	0
0	5	0	0	0	1	1.0000	0	0	0	0
0	6	0	0	0	3	1.0000	0	0	0	0
1	0	0	0	0	24	1.0000	0	0	0	0
1	0	0	2	0	6	0.5556	0	0.4444	0	0
1	0	0	1	1	1	0.6296	0	0.1852	0.1852	0
1	0	0	0	2	2	0.5556	0	0	0.4444	0
1	0	1	1	0	3	0.6296	0.1852	0.1852	0	0
1	0	1	0	1	1	0.6296	0.1852	0	0.1852	0
1	0	2	0	0	7	0.5556	0.4444	0	0	0
1	0	5	0	0	1	0.3056	0.6944	0	0	0
1	1	0	4	0	1	0.4075	0	0.5925	0	0
1	1	2	2	0	1	0.4444	0.3333	0.2222	0	0
1	1	3	1	0	1	0.4352	0.5000	0.0648	0	0
1	2	1	0	0	1	0.8750	0.1250	0	0	0
1	2	3	0	0	1	0.5833	0.4167	0	0	0
2	0	0	0	0	2	1.0000	0	0	0	0
2	0	0	0	1	2	0.8889	0	0	0.1111	0
2	0	0	1	0	3	0.8889	0	0.1111	0	0
2	0	0	4	0	1	0.5556	0	0.4444	0	0
2	0	0	0	4	1	0.5556	0	0	0.4444	0
2	0	1	0	0	2	0.8889	0.1111	0	0	0
2	0	2	0	2	1	0.6296	0.1852	0	0.1852	0
2	0	2	2	0	5	0.6296	0.1852	0.1852	0	0
2	0	3	0	1	3	0.6111	0.3333	0	0.0556	
2	0	3	1	0	1	0.6111	0.3333	0.0556	0	0
2	1	0	0	0	2	1.0000	0	0	0	0
2	2	0	0	0	1	1.0000	0	0	0	0
3	0	0	0	0	37	1.0000	0	0	0	0
3	0	0	3	0	1	0.7500	0	0.2500	0	0
3	0	1	0	0	2	0.9375	0.0625	0	0	0
3	0	1	2	0	3	0.8056	0.0463	0.1481	0	0
3	0	3	0	0	2	0.7500	0.2500	0	0	0
4	0	0	0	0	4	1.0000	0	0	0	0
4	0	1	1	0	1	0.9259	0.0370	0.0370	0	0
4	0	1	0	1	1	0.9259	0.0370	0	0.0370	0

Distribution of Rabbit Outcomes					Number of Studies	Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>		<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
4	0	2	0	0	4	0.8889	0.1111	0	0	0
5	0	0	0	0	1	1.0000	0	0	0	0
5	0	0	0	1	1	0.9723	0	0	0.0278	0
5	0	0	1	0	2	0.9723	0	0.0278	0	0
5	0	1	0	0	5	0.9723	0.0278	0	0	0
5	1	0	0	0	5	1.0000	0	0	0	0
6	0	0	0	0	26	1.0000	0	0	0	0

Abbreviations: Cat = Category, NI = Nonirritant, VR = variable responder.

Table C. Distribution of Rabbits Among Three Subgroups of GHS Category 1 Substances

	All Data	Strong Responders	Moderate Responders	Weak Responders
Number of Studies	181	108	32	41
Total Number of Rabbits	723	385	162	176
Cat 1A	499	347	104	48
Cat 1B	50	38	6	6
Cat 2A	96	0	32	64
Cat 2B	58	0	16	42
Nonirritant	20	0	4	16

Abbreviation: Cat = Category

Strong responders are GHS Category 1 substances that produced either a Cat 1A or 1B response in all tested rabbits; Moderate responders are GHS Category 1 substances that produced a Cat 1 response in at least 50% but not 100% of the rabbits tested; Weak responders are GHS Category 1 substances that produced a nonsevere irritant (i.e., Cat 2A or 2B) or nonirritant response in more than half of the rabbits tested.

Table D. Distribution of Studies and Rabbits (Total and by Responder Classification) for GHS Category 1 Substances Categorized into the Four GHS Criteria for Classifying a Test Substance as a Corrosive or Severe Irritant

	Criterion 1				Criterion 2				Criterion 3				Criterion 4			
	Total	Strong	Mod.	Weak	Total	Strong	Mod.	Weak	Total	Strong	Mod.	Weak	Total	Strong	Mod.	Weak
Number of Studies	61	22	18	21	8	6	2	0	3	3	0	0	88	68	11	9
Total Number of Rabbits	246	67	92	87	37	30	7	0	12	12	0	0	360	267	57	36
Cat 1A	156	66	61	29	3	2	1	0	8	8	0	0	315	262	41	12
Cat 1B	1	1	0	0	32	28	4	0	4	4	0	0	5	5	0	0
Cat 2A	46	0	17	29	1	0	1	0	0	0	0	0	21	0	11	10
Cat 2B	36	0	13	23	1	0	1	0	0	0	0	0	10	0	2	8
NI	7	0	1	6	0	0	0	0	0	0	0	0	9	0	3	6

Abbreviation: Cat = Category; Mod. = Moderate

Criterion 1: Positive response based not on severity but on persistent lesion involving cornea, iris, and/or conjunctiva through to day 21 in at least one of three rabbits; Criterion 2: Positive response based on mean for first three days (corneal opacity ≥ 3 and < 4 or iritis ≥ 1.5) in at least two of three rabbits but lesions do not persist through day 21; Criterion 3: Positive response based on mean for first three days (corneal opacity ≥ 3 and < 4 or iritis ≥ 1.5) in at least two of three rabbits and lesions in at least one of three rabbits that persist through day 21; Criterion 4: Corneal opacity equal to 4 at any time in at least one of three rabbits. Strong responders are GHS Category 1 substances that virtually always produce either a Cat 1A or 1B response in all tested rabbits; Moderate responders are GHS Category 1 substances that produced a Cat 1 response in at least 50% but not 100% of the rabbits tested; Weak responders are GHS Category 1 substances that resulted in more than half of the rabbits tested responding with a Cat 2A, 2B, or nonirritant response.

Table E. Distribution of Rabbit Response Patterns for GHS Category 1 Substances Distinguished by the GHS Criterion used to Classify the Test Substance as a Corrosive or Severe Irritant and the Corresponding Likelihood of Classification

Distribution of Rabbit Outcomes					Number of Studies				Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>	<i>Crit. 1</i>	<i>Crit. 2</i>	<i>Crit. 3</i>	<i>Crit. 4</i>	<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
0	2	0	1	0	0	1	0	0	0.7407	0	0.2593	0	0
0	3	0	0	0	0	1	1	0	1.0000	0	0	0	0
0	5	0	0	0	0	1	0	0	1.0000	0	0	0	0
0	6	0	0	0	0	3	0	0	1.0000	0	0	0	0
1	0	0	0	0	4	0	0	11	1.0000	0	0	0	0
1	0	0	1	1	0	0	0	1	0.6296	0	0.1852	0.1852	0
1	0	0	2	0	5	0	0	1	0.5556	0	0.4444	0	0
1	0	0	1	1	0	0	0	1	0.6296	0	0.1852	0.1852	0
1	0	0	0	2	0	0	0	1	0.5556	0	0	0.4444	0
1	0	1	1	0	2	0	0	1	0.6296	0.1852	0.1852	0	0
1	0	1	0	1	0	0	0	1	0.5556	0	0	0.4444	0
1	0	2	0	0	6	0	0	1	0.5556	0.4444	0	0	0
1	2	1	0	0	0	1	0	0	0.8750	0.1250	0	0	0
2	0	0	0	0	0	0	0	2	1.0000	0	0	0	0
2	0	0	0	1	0	0	0	2	0.8889	0	0	0.1111	0
2	0	0	1	0	2	0	0	1	0.8889	0	0.1111	0	0
2	0	0	4	0	0	0	0	1	0.5556	0	0.4444	0	0
2	0	0	0	4	1	0	0	0	0.5556	0	0	0.4444	0
2	0	1	0	0	2	0	0	0	0.8889	0.1111	0	0	0
2	0	2	0	2	1	0	0	0	0.6296	0.1852	0	0.1852	0
2	0	2	2	0	5	0	0	0	0.6296	0.1852	0.1852	0	0
2	0	3	1	0	1	0	0	0	0.6111	0.3333	0.0556	0	0
2	1	0	0	0	1	0	0	1	1.0000	0	0	0	0
2	2	0	0	0	0	1	0	0	1.0000	0	0	0	0
3	0	0	0	0	13	0	1	23	1.0000	0	0	0	0
3	0	0	3	0	1	0	0	0	0.7500	0	0.2500	0	0
3	0	1	0	0	2	0	0	0	0.9375	0.0625	0	0	0
3	0	1	2	0	3	0	0	0	0.8056	0.0463	0.1481	0	0
3	0	3	0	0	1	0	0	1	0.7500	0.2500	0	0	0
4	0	0	0	0	1	0	0	3	1.0000	0	0	0	0
4	0	1	1	0	1	0	0	0	0.9259	0.0370	0.0370	0	0
4	0	1	0	1	0	0	0	1	0.9259	0.0370	0	0.0370	0
4	0	2	0	0	2	0	0	2	0.8889	0.1111	0	0	0
5	0	0	0	0	1	0	0	0	1.0000	0	0	0	0
5	0	0	1	0	1	0	0	1	0.9723	0	0.0278	0	0
5	0	0	0	1	1	0	0	0	0.9723	0	0	0.0278	0
5	0	1	0	0	2	0	0	3	0.9723	0.0278	0	0	0
5	1	0	0	0	0	0	1	4	1.0000	0	0	0	0
6	0	0	0	0	2	0	0	24	1.0000	0	0	0	0

Abbreviations: Cat = Category; Crit. = criterion; NI = Nonirritant; VR = variable responder.

Criterion 1: Positive response based not on severity but on persistent lesion involving cornea, iris, and/or conjunctiva through to day 21 in at least one of three rabbits; Criterion 2: Positive response based on mean for first three days (corneal opacity ≥ 3 and < 4 or iritis ≥ 1.5) in at least two of three rabbits but lesions do not persist through day 21; Criterion 3: Positive response based on mean for first three days (corneal opacity ≥ 3 and < 4 or iritis ≥ 1.5) in at least two of three rabbits and lesions in at least one of three rabbits that persist through day 21; Criterion 4: Corneal opacity equal to 4 at any time in at least one of three rabbits.

Table F. Distribution of GHS Category 1 Substances and Rabbits (Total and Total and by Responder Classification) for GHS Category 1 Substances Tested as Liquids/Gels or as Solids

	Liquids/Gels				Solids			
	Total	Strong	Moderate	Weak	Total	Strong	Moderate	Weak
Number of Studies	100	55	20	25	30	20	6	4
Total Number of Rabbits	420	207	100	113	120	74	30	18
Cat 1A	283	194	61	28	86	61	20	5
Cat 1B	22	13	4	5	16	13	2	1
Cat 2A	57	0	17	40	17	0	7	10
Cat 2B	47	0	15	32	2	0	1	1
NI	11	0	3	8	1	0	0	1

Abbreviations: Cat = Category; NI = Nonirritant

Strong responders are GHS Category 1 substances that virtually always produce either a Cat 1A or 1B response in all tested rabbits; Moderate responders are GHS Category 1 substances that produced a Cat 1 response in at least 50% but not 100% of the rabbits tested; Weak responders are GHS Category 1 substances that resulted in more than half of the rabbits tested responding with a Cat 2A, 2B, or nonirritant response.

Table G. Distribution of Rabbit Response Patterns for GHS Category 1 Substances for Liquids/Gels and Solids, and the Likelihood of GHS Classification

Distribution of Rabbit Outcomes					Number of Studies		Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>	<i>Liquids/Gels</i>	<i>Solids</i>	<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
0	0	1	1	1	1	0	0	0.4815	0.2593	0.2593	0
0	0	3	1	0	1	0	0	0.8437	0.1563	0	0
0	1	2	0	0	1	0	0.2593	0.7407	0	0	0
0	1	3	2	0	1	0	0.0741	0.6667	0.2593	0	0
0	1	3	0	0	1	0	0.1563	0.8437	0	0	0
0	2	0	1	0	0	1	0.7407	0	0.2593	0	0
0	3	0	0	0	0	2	1.0000	0	0	0	0
0	6	0	0	0	1	1	1.0000	0	0	0	0
1	0	0	0	0	6	4	1.0000	0	0	0	0
1	0	0	0	2	1	0	0.5556	0	0	0.4440	0
1	0	0	1	1	1	0	0.6296	0	0.1852	0.1852	0
1	0	0	2	0	2	0	0.5556	0	0.4444	0	0
1	0	1	0	1	1	0	0.6296	0.1852	0	0.1852	0
1	0	1	1	0	3	0	0.6296	0.1852	0.1852	0	0
1	0	2	0	0	1	2	0.5556	0.4444	0	0	0
1	0	5	0	0	1	0	0.3056	0.6944	0	0	0
1	1	0	4	0	1	0	0.4075	0	0.5925	0	0
1	1	2	2	0	1	0	0.4444	0.3333	0.2222	0	0
1	1	3	1	0	0	1	0.4352	0.5000	0.0648	0	0
1	2	1	0	0	1	0	0.8750	0.1250	0	0	0
1	2	3	0	0	1	0	0.5833	0.4167	0	0	0
2	0	0	0	0	2	0	1.0000	0	0	0	0
2	0	0	0	1	2	0	0.8889	0	0	0.1111	0
2	0	0	1	0	3	0	0.8889	0	0.1111	0	0
2	0	0	4	0	1	0	0.5556	0	0.4444	0	0
2	0	1	0	0	1	1	0.8889	0.1111	0	0	0
2	0	2	0	2	1	0	0.6296	0.1852	0	0.1852	0
2	0	2	2	0	5	0	0.6296	0.1852	0.1852	0	0
2	0	3	0	1	1	1	0.6111	0.3333	0	0.0556	0
2	1	0	0	0	1	1	1.0000	0	0	0	0
2	2	0	0	0	1	0	1.0000	0	0	0	0
3	0	0	0	0	25	5	1.0000	0	0	0	0
3	0	0	3	0	1	0	0.7500	0	0.2500	0	0
3	0	1	2	0	3	0	0.8056	0.0463	0.1481	0	0
3	0	3	0	0	2	0	0.7500	0.2500	0	0	0
4	0	0	0	0	2	1	1.0000	0	0	0	0
4	0	1	1	0	1	0	0.9259	0.0370	0.0370	0	0
4	0	2	0	0	0	2	0.8889	0.1111	0	0	0
5	0	0	0	0	1	0	1.0000	0	0	0	0
5	0	0	0	1	1	0	0.9723	0	0	0.0278	0
5	0	0	1	0	2	0	0.9723	0	0.0278	0	0
5	0	1	0	0	2	2	0.9723	0.0278	0	0	0

Distribution of Rabbit Outcomes					Number of Studies		Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>	<i>Liquids/Gels</i>	<i>Solids</i>	<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
5	1	0	0	0	4	0	1.0000	0	0	0	0
6	0	0	0	0	12	6	1.0000	0	0	0	0

Abbreviations: Cat = Category, NI = Nonirritant, VR = variable responder.

Table H. Number of GHS Category 1 Substances in Each Chemical Class and the Irritant Category Distribution for Treated Rabbits, by Chemical Class*

Chemical Class	Studies	Distribution of Rabbits among GHS Classifications					Total Animals
		1A	1B	2A	2B	NI	
Formulations	62	213	12	40	32	9	306
Alcohols	23	51	8	23	4	3	89
Amines	22	63	4	11	2	1	81
Organic compounds	21	39	6	11	7	5	68
Carboxylic acids	19	31	7	12	12	4	66
Salts	19	40	2	13	5	5	65
Ethers	11	24	3	6	5	1	39
Esters	10	23	6	3	5	0	37
Heterocycles	12	26	5	2	4	0	37
Phenols	6	19	12	0	0	0	31
Inorganics	7	27	0	2	0	0	29
Onium compounds	9	25	4	0	0	0	29
Sulfur compounds	8	15	4	0	2	0	21
Polycyclic compounds	4	11	1	5	1	0	18
Organosilicon compounds	4	11	0	2	2	0	15
Acyl halides	2	9	1	0	0	0	10
Acids	2	9	0	0	0	0	9
Amidines	3	5	0	2	0	0	7
Aldehydes	2	4	0	2	0	0	6
Boron compounds	1	4	0	2	0	0	6
Organophosphorous compounds	1	6	0	0	0	0	6
Quinones	1	2	0	3	0	1	6
Amides	3	5	0	0	0	0	5
Isocyanates	2	5	0	0	0	0	5
Nitriles	2	4	0	0	0	0	4
Imides	1	3	0	0	0	0	3
Alkalies	1	1	0	0	0	0	1
Nitro compounds	1	1	0	0	0	0	1

* Chemical class assignments are based on chemical structures; formulations are mixtures of chemicals, therefore individual chemical class assignments could not be made. Not all substances could be classified by chemical class and some substances were classified into more than one chemical class. Chemical classifications made based on the Medical Subject Headings (MeSH) chemical classification system (<http://www.nlm.nih.gov/mesh/meshhome.html>).

Table I. Distribution of Rabbits for GHS Category 2A, 2B, and Nonirritant Substances

	Category 2A Substances	Category 2B Substances	Nonirritant Substances
Total Number of Studies	60	51	485
Total Number of Rabbits Classified as Cat 1A	8	1	0
Total Number of Rabbits Classified as Cat 1B	7	1	0
Total Number of Rabbits Classified as Cat 2A	181	10	11
Total Number of Rabbits Classified as Cat 2B	38	141	46
Total Number of Rabbits Classified as Nonirritant	19	31	1987
Total Number of Rabbits	253	184	2044

Abbreviation: Cat = Category.

Table J. Distribution of Rabbit Response Patterns for GHS Category 1 Substances and the Corresponding Likelihood of Classification

Distribution of Rabbit Outcomes					Number of Studies			Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>I</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
0	0	0	0	3	0	1	246	0	0	0	1.0000	0
0	0	0	0	4	0	0	26	0	0	0	1.0000	0
0	0	0	0	5	0	0	2	0	0	0	1.0000	0
0	0	0	0	6	0	0	160	0	0	0	1.0000	0
0	0	0	1	2	0	1	15	0	0	0.2593	0.7407	0
0	0	0	1	3	0	0	2	0	0	0.1562	0.8438	0
0	0	0	1	5	0	0	17	0	0	0.0741	0.9259	0
0	0	0	2	1	0	15	0	0	0	0.7407	0.2593	0
0	0	0	2	4	0	0	6	0	0	0.2593	0.7407	0
0	0	0	3	0	1	18	0	0	0	1.0000	0	0
0	0	0	4	2	0	4	0	0	0	0.7407	0.2593	0
0	0	0	6	0	0	1	0	0	0	1.0000	0	0
0	0	1	0	2	0	0	7	0	0.2593	0	0.7407	0
0	0	1	0	3	0	0	2	0	0.1562	0	0.8438	0
0	0	1	0	5	0	0	2	0	0.0741	0	0.9259	0
0	0	1	1	1	3	0	0	0	0.4815	0.2593	0.2593	0
0	0	1	2	0	0	5	0	0	0.2593	0.7407	0	0
0	0	1	3	0	0	1	0	0	0.1562	0.8438	0	0
0	0	1	4	1	0	2	0	0	0.1852	0.7407	0.0741	0
0	0	2	0	1	3	0	0	0	0.7407	0	0.2593	0
0	0	2	1	0	10	0	0	0	0.7407	0.2593	0	0
0	0	2	2	2	1	0	0	0	0.4815	0.2593	0.2593	0
0	0	2	4	0	1	1	0	0	0.2593	0.7407	0	0
0	0	3	0	0	12	0	0	0	1.0000	0	0	0
0	0	3	1	0	1	0	0	0	0.8438	0.1562	0	0
0	0	3	2	1	2	0	0	0	0.6667	0.2593	0.0741	0
0	0	4	0	0	1	0	0	0	1.0000	0	0	0
0	0	4	0	2	1	0	0	0	0.7407	0	0.2593	0
0	0	4	1	1	2	0	0	0	0.8518	0.0741	0.0741	0
0	0	4	2	0	2	0	0	0	0.7407	0.2593	0	0
0	0	5	1	0	1	0	0	0	0.9259	0.0741	0	0
0	0	6	0	0	4	0	0	0	1.0000	0	0	0
0	1	0	5	0	0	1	0	0.0741	0	0.9259	0	0
0	1	1	1	0	2	0	0	0.2593	0.4815	0.2593	0	0
0	1	2	0	1	2	0	0	0.1562	0.5000	0	0.1562	0
0	1	3	0	0	2	0	0	0.1562	0.8438	0	0	0
0	1	5	0	0	1	0	0	0.0741	0.9259	0	0	0
1	0	0	4	1	0	1	0	0.2426	0	0.5925	0.0648	0
1	0	2	0	1	1	0	0	0.5000	0.3750	0	0.1250	0
1	0	4	0	1	2	0	0	0.3426	0.5925	0	0.0648	0
1	0	4	1	0	2	0	0	0.3426	0.2925	0.0648	0	0
1	0	5	0	0	3	0	0	0.3056	0.6944	0	0	0

Abbreviations: Cat = Category, NI = Nonirritant, VR = variable responder.

Table K. Distribution of Rabbit Response Patterns for 15 Equivocal Substances

Distribution of Rabbit Outcomes					Number of Studies	Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>		<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
1	0	0	2	3	1	0.3611	0	0.2222	0.4167	0
1	0	1	0	4	2	0.3426	0.0648	0.0	0.5925	0
1	0	1	3	1	3	0.3704	0.1482	.4167	0.0648	0
1	0	0	0	5	2	0.3056	0	0	0.6944	0
1	0	0	1	4	1	0.3426	0	0.0648	0.5925	0
0	0	0	3	3	3	0	0	0.5000	0.5000	0
0	0	1	2	3	1	0	0.2408	0.2592	0.5000	0
0	0	2	0	2	1	0	0.5000	0	0.5000	0
0	0	3	0	3	1	0	0.5000	0	0.5000	0

Abbreviations: Cat = Category, NI = Nonirritant, VR = variable responder.

Table L. Distribution of Rabbit Response Patterns for 18 Substances Reclassified as GHS Category 1 Substances and the Corresponding Likelihood of Classification

Distribution of Rabbit Outcomes					Number of Studies	Likelihood of GHS Classification				
<i>Cat 1A</i>	<i>Cat 1B</i>	<i>Cat 2A</i>	<i>Cat 2B</i>	<i>NI</i>		<i>1</i>	<i>2A</i>	<i>2B</i>	<i>NI</i>	<i>VR</i>
1	0	0	2	3	1	0.3611	0	0.2222	0.4167	0
1	0	1	0	4	2	0.3426	0.0648	0.0	0.5925	0
1	0	1	3	1	3	0.3704	0.1482	.4167	0.0648	0
1	0	0	0	5	2	0.3056	0	0	0.6944	0
1	0	0	1	4	1	0.3426	0	0.0648	0.5925	0
1	0	5	0	0	3	0.3056	0.6944	0	0	0
1	0	4	0	1	2	0.3426	0.5925	0	0.0648	0
1	0	4	1	0	2	0.3426	0.5925	0.0648	0	0
1	0	2	0	1	1	0.5000	0.3750	0	0.1250	0
1	0	0	4	1	1	0.3426	0	0.5925	0.0648	0

Abbreviations: Cat = Category, NI = Nonirritant, VR = variable responder.

Table M. Distribution of Rabbits Among Three Subgroups of GHS Category 1 Substances After Inclusion of 18 Additional Substances

	All Data	Strong Responders	Moderate Responders	Weak Responders
Number of Studies	199	108	32	59
Total Number of Rabbits	829	385	162	282
Cat 1A	517	347	104	66
Cat 1B	50	38	6	6
Cat 2A	134	0	32	102
Cat 2B	76	0	16	60
Nonirritant	52	0	4	48

Abbreviation: Cat = Category

Strong responders are GHS Category 1 substances that produced either a Cat 1A or 1B response in all tested rabbits; Moderate responders are GHS Category 1 substances that produced a Cat 1 response in at least 50% but not 100% of the rabbits tested; Weak responders are GHS Category 1 substances that produced a nonsevere irritant (i.e., Cat 2A or 2B) or nonirritant response in more than half of the rabbits tested.