

Erratum and Addendum to the Final Report on Carcinogens Background Document for Styrene

The following corrections are made to the Final Report on Carcinogens Background Document for Styrene.

1. Table 3-10, page 187. The footnote * is corrected to read: “Note that Kolstad *et al.* classified employees at companies with 50% or more of workers involved in reinforced plastics as probable high exposure, and that most of the companies were boat yards or manufacturers of containers by hand lamination.”
2. Page 174, lines 12-13. The following text in parentheses, “(workers from plants employing 50% to 100% laminators),” is deleted from the sentence: “Kolstad *et al.* (1995) reported significant risks of pancreatic cancer among individuals with probable high styrene exposures (workers from plants employing 50% to 100% laminators), and among individuals exposed to styrene for greater than one year.”

The following sentence is added: “The authors classified employees at companies with 50% or more of workers involved in reinforced plastics as probable high exposure, and most of the companies were boat yards or manufacturers of containers by hand lamination.”

3. Page 384, lines 7-9. The reference is added: “An alternative mechanism (Cruzan *et al.* 2002) is that interspecies differences in styrene toxicity are most likely explained through CYP2F-generated metabolites (2f2 in mice, 2F4 in rats, and 2F1 in humans) in the mouse lung.”

The following clarifications are made to the Final Report on Carcinogens Background Document for Styrene. New text is shown in italics.

1. The terms “statistically significant” and/or “statistically non-significant” and/or the *P* value are added to clarify the reported findings as follows:
 - Page xii, lines 19-22 and page 192, lines 14-17: “In the styrene monomer and polymer industries, the risk of lymphohematopoietic malignancies was also increased (*both statistically significant and statistically non-significant*) in most of the studies (as well as the total number of observed cases across studies), but these workers might also have been exposed to benzene.”
 - Page xii, line 30 to page xiii, line 2 and page 192, lines 25 to 27: “The risk of pancreatic cancer was slightly higher among the Danish workers with longer term employment and earlier start date, and increased with cumulative exposure (*P = 0.068*) in the multi-plant cohort.”
 - Page 178, lines 27-30: “In analyses of subtypes of leukemia, the risk of myelogenous leukemia (chronic and acute) was slightly higher than for all leukemia (Kogevinas *et al.* 1994a), and *statistically non-significant* increased risk was also seen for myeloid leukemia with chromosomal aberrations in a nested case-control study of the Danish workers *based on small number of cases* (Kolstad *et al.* 1996).”

- Page 181, lines 19-24: “The nested case-control study from the Matanoski cohort of 58 lymphohematopoietic cases and 1,242 controls found two- to three-fold *statistically significant* increased risks for lymphoma, lymphosarcoma, and myeloma and styrene exposure (increase of 1 ppm in TWA) (Matanoski *et al.* 1997), and the risk of myeloma increased with increasing cumulative exposure ($P = 0.023$) to styrene using the step-down regression analysis and taking into account butadiene exposure and other variables.
 - Page 184, lines 20-22: “A *statistically significant* increased risk of renal-cell cancer was also associated with exposure to styrene-butadiene rubber in the population case-control study from Canada (Parent *et al.* 2000).”
 - Page 184, lines 25-29: “*Statistically significant* increased risk of breast cancer was suggested in an ecological study (Coyle *et al.* 2005), which assessed styrene exposure by toxic release inventory data; [however, this study was limited by the ecological design and poor characterization of styrene exposure, which was based only on residence in counts with varying environmental toxic releases].”
2. Page 360, lines 17-18. The following sentence is deleted: “However, most of the studies published prior to 1994 were negative while most of the studies published after 1994 were positive.”
 3. Table 5-18, page 367. The designation for Mutations – *In vivo* Humans is changed from “(+)” to “inconclusive.”