Basic Red 9 Monohydrochloride
CAS No. 569-61-9

Reasonably anticipated to be a human carcinogen
First listed in the Fifth Annual Report on Carcinogens (1989)
Also known as C.I. basic red monohydrochloride, C.I. 42500, or pararosaniline hydrochloride

Properties
Basic red 9 monohydrochloride is a triphenylmethylene dye that is a colorless to red or dark-green crystalline powder at room temperature. It is slightly soluble in water and ether and soluble in ethanol, methanol, and ethylene glycol methyl ether (HSDB 2009). It is stable under normal temperatures and pressures, but may decompose if heated (Akron 2009). Physical and chemical properties of basic red 9 monohydrochloride are listed in the following table.

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
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<tbody>
<tr>
<td>Molecular weight</td>
<td>323.8&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Melting point</td>
<td>268°C to 270°C (decomposes)&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Log&lt;sub&gt;K&lt;sub&gt;&lt;sup&gt;a&lt;/sub&gt;&lt;/sup&gt;</td>
<td>0.21&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Water solubility</td>
<td>3 g/L at 25°C&lt;sup&gt;c&lt;/sup&gt;</td>
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<tr>
<td>Vapor pressure</td>
<td>9.26 x 10&lt;sup&gt;-10&lt;/sup&gt; mm Hg&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
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</table>

Sources: <sup>1</sup>HSDB 2009, <sup>2</sup>ChemIDplus 2009.

Use
Basic red 9 monohydrochloride can be used to make C.I. solvent blue 23 and is a component of magenta dye (C.I. 42510). The Biological Stain Commission has determined that magenta must contain at least 50% C.I. basic red 9 in order to perform satisfactorily as a component of nutrient agar used in biological testing. Basic red 9 monohydrochloride is also used as a biological stain and as a dye for textiles (silks and acrylics), leather, fur, paper, carbon paper, plastics, glass, waxes, polishes, soaps, cosmetics, drugs, toilet sanitary preparations, automobile antifreeze solutions, anodized aluminum, high-speed photoduplicating inks, photo-imaging systems, and ink-jet computer printers (NTP 1986, IARC 1993, HSDB 2009).

Production
Two U.S. companies produced over 900 kg (2,000 lb) of C.I. basic red 9 in 1972, over 450 kg (1,000 lb) in 1975, and between 1 million and 10 million pounds in 1977 (NTP 1986, HSDB 2009). In 2009, no commercial producers of basic red 9 monohydrochloride were identified worldwide; however, 14 suppliers were identified, including 12 U.S. suppliers (ChemSources 2009). In 1974, the United States imported 2,000 kg (4,410 lb) of basic red 9 (HSDB 2009); no more recent data on U.S. exports or imports were found.

Exposure
The routes of potential human exposure to basic red 9 monohydrochloride are dermal contact, inhalation, and ingestion. Laboratory personnel who use and handle basic fuchsin dye might be exposed to basic red 9 monohydrochloride (HSDB 2009). Exposure might also occur through its use in magenta used in photoduplicating inks, photo-imaging systems, and ink-jet computer printers. The National Occupational Exposure Survey (conducted from 1981 to 1983) estimated that 907 workers (mostly from the Food and Kindred Products and Health Services industries), including 733 women, potentially were exposed to basic red 9 monohydrochloride (NIOSH 1990).

Regulations and Guidelines
Department of Transportation (DOT)
Toxic dyes and toxic dye intermediates are considered hazardous materials, and special requirements have been set for marking, labeling, and transporting these materials.

References


