NO SIGNIFICANT RISK LEVEL (NSRL) FOR THE PROPOSITION 65 CARCINOGEN \( p \)-CHLORO-\( o \)-TOLUIDINE HYDROCHLORIDE

August 2002

Reproductive and Cancer Hazard Assessment Section
Office of Environmental Health Hazard Assessment (OEHHA)
California Environmental Protection Agency

The strong acid salts of \( p \)-chloro-\( o \)-toluidine (CAS number 95-69-2) were listed on May 15, 1998 as chemicals known to the State to cause cancer under Proposition 65 (California Health and Safety Code 25249.5 et seq.). \( p \)-Chloro-\( o \)-toluidine hydrochloride (CAS number 3165-93-3) has been the only commercially available strong acid salt of \( p \)-chloro-\( o \)-toluidine (IARC, 2000). Production of both chemicals appears to have ceased in most countries. IARC (2000) located information dating from 1999 that indicated production of \( p \)-chloro-\( o \)-toluidine in China.

“\( p \)-Chloro-\( o \)-toluidine” was listed on January 1, 1990 as a chemical known to the State to cause cancer under Proposition 65 (California Health and Safety Code 25249.5 et seq.). A cancer potency of 0.27 (mg/kg-day)\(^{-1}\) for \( p \)-chloro-\( o \)-toluidine was generated using the expedited approach (OEHHA, 1992). The cancer potency for \( p \)-chloro-\( o \)-toluidine was based on bioassay results for the hydrochloride salt, adjusted for molecular weight differences. A geometric mean was taken of four potencies derived from dose-response data for vascular tumors in male and female CD-1 HaM/ICR and B6C3F\(_1\) mice (Weisburger et al., 1978; NCI, 1979). Survival was poor in the NCI study of male B6C3F\(_1\) mice, so the potency for that study was derived using a time-to-tumor analysis (Crump et al., 1991).

To obtain the cancer potency for \( p \)-chloro-\( o \)-toluidine hydrochloride, a molecular weight adjustment was applied to the cancer potency for \( p \)-chloro-\( o \)-toluidine published previously by OEHHA (1992):

\[
q_{\text{human}} \text{ (HCl salt)} = q_{\text{human}} \text{ (parent compound)} \times \left( \frac{\text{MW (parent compound)}}{\text{MW (HCl salt)}} \right) \tag{1}
\]

The molecular weights of the parent compound and its hydrochloride salt are 141.6 and 178.1, respectively.

The no significant risk level (NSRL) in units (mg/day) for a 70 kg person was calculated according to the following equation:

\[
\text{NSRL} = \frac{10^{-5} \times 70 \text{ kg}}{q_{\text{human}}} \tag{2}
\]

where \( q_{\text{human}} \) is the human cancer potency in units (mg/kg-day)\(^{-1}\).
The cancer potency and NSRL for \( p \)-chloro-\( o \)-toluidine hydrochloride are summarized in Table 1.

**Table 1. Cancer Potency and NSRL for \( p \)-Chloro-\( o \)-Toluidine Hydrochloride.**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Cancer Potency (mg/kg-day)(^1)</th>
<th>NSRL ((\mu)g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p )-Chloro-( o )-toluidine hydrochloride</td>
<td>0.21</td>
<td>3.3</td>
</tr>
</tbody>
</table>

**REFERENCES**


