

*Blow snow, not your budget.*

## Safety Assessment Summary for Use in Snowmaking Operations



### Human Toxicity

Routes of potential human exposure to DRIFT during snowmaking operations include inhalation, dermal (skin) contact, and incidental ingestion (accidental swallowing). A preliminary evaluation of these routes of exposure and potential adverse health impacts suggests a very low risk of harm to workers, skiers, or wildlife.

**INHALATION:** Potential aerosol inhalation hazards of DRIFT surfactant appear to be the most serious consideration for humans exposed to the product in snowmaking operations. While repeated inhalation of even low concentrations of the neat product is ill-advised due to toxicity to the respiratory epithelium, concentrations in snow aerosols would appear to pose little risk of adverse health effects to either workers or skiers. Based on a preliminary but conservative RfC<sup>1</sup> estimated from toxicity summaries, there would appear to be at least a 100-fold margin of exposure for inhalation health risks to skiers.

RfC <sup>1</sup>	0.005 mg/m <sup>3</sup>
Concentration in Snow Aerosol at Aerosol TLV	0.00005 mg/m <sup>3</sup>
Margin of Exposure	100

Because the material has very low volatility, workers who handle the neat product would not be expected to encounter significant vapor concentrations of the chemical. Since care in handling the material would be sufficient to avoid creating mists or aerosols of the product, inhalation of the neat product would be unlikely.

**INGESTION:** Although feeding studies have suggested toxicity to the testis, ovaries and thyroid at doses as low as 97 mg/kg/day, it would seem unlikely that humans could incidentally ingest sufficient quantities of artificial snow to pose a risk of systemic toxicity from DRIFT.

Repeated incidental ingestion of the neat product or of concentrated solutions of the product by workers during preparation of the snow is of greater concern than incidental ingestion of the artificial snow itself. Caution is advised when handling the concentrated product or concentrated solutions to prevent accidental ingestion. Use of eye protection, gloves, long sleeves, and preventing the material from contacting food and beverage should be sufficient precaution for handling this product.

**DERMAL:** The dermal toxicity of DRIFT is extremely low and the product is not a skin sensitizer. The product is a severe eye irritant, and eye protection should be worn whenever there is a potential for eye exposure to the neat product. The extremely low concentrations of the product present in artificial snow would not be expected to produce an eye irritation hazard.

### Ecotoxicity

Aquatic toxicity and phytotoxicity are the most serious environmental considerations for DRIFT surfactant. The concern is primarily for run-off of melted snow into streams or lakes after significant amounts have been applied to ski slopes over the course of a winter. Although aquatic toxicity and phytotoxicity of the DRIFT surfactant is a concern at low part per million concentrations, the rapid degradation of this material would be expected to prevent significant concentrations from developing in natural waters.

<sup>1</sup> A reference concentration (RfC) is a concentration of chemical in air that is considered to pose no unacceptable risk of adverse health effects. The RfC for DRIFT estimated here is likely to be unnecessarily conservative, i.e., the material is assumed to be more toxic to humans than is likely.