

# 1,4-Dioxane

**1,4-Dioxane is a solvent used in laboratories and in adhesive products used in celluloid film processing. It's also found as a by-product in some surfactants and emulsifiers used in consumer products: detergents, cosmetics and pharmaceutical products.**

NICNAS assessed 1,4-dioxane in May 1994. These are the main findings of that assessment.

A workplace product containing more than 0.1% 1,4-dioxane is classed as a Hazardous Substance.

1,4-Dioxane is in Class 3, (Packing Group II) under the Australian Dangerous Goods Code. 1,4-Dioxane is highly flammable and may react with light and air to form explosive substances.

It is a scheduled poison with limits set for the levels in consumer products.

1,4-Dioxane poisoning can occur through the skin, swallowing or by inhalation. Of these, breathing 1,4-dioxane vapour is by far the most likely way for poisoning to occur.

High exposure can result in liver and kidney damage and death.

1,4-Dioxane is an eye and respiratory irritant.

1,4-Dioxane causes cancer in animals after prolonged exposure.

## RECOMMENDATIONS

Using 1,4-dioxane poses two kinds of hazard: a physical one from its extreme flammability and potential to form explosives and a health hazard from breathing in the fumes.

All sources of potential sparks should be avoided: non-sparking footwear should be worn, and non-sparking ventilation installed. 1,4-Dioxane should not be stored in bottles with ground glass stoppers.

Operations using 1,4-dioxane should be carried out in fume cupboards in laboratory applications.

Workers potentially exposed to 1,4-dioxane should be trained in safe working procedures, particularly how to deal with fires.

The national exposure standard is an average exposure level of 25 ppm TWA. This level needs to be reviewed.

Exposure should be kept to a minimum.

More information on 1,4-dioxane can be found in the Material Safety Data Sheet available from the supplier. The most comprehensive source of information is the detailed assessment of 1,4-dioxane published by the National Industrial Chemical Notification and Assessments Scheme (NICNAS). This is available free of charge by calling 1800 638 528. More information on the use of industrial chemicals can be found at the NICNAS website: [www.nicnas.gov.au](http://www.nicnas.gov.au)