


Limonene



Limonene, also known as *d* – limonene, *l* – limonene or dipentene, is widely used as a flavour and fragrance additive in cleaning and cosmetic products, food and pharmaceuticals. It is also present in most of the essential oils commonly used in Australia, particularly citrus oils. In the workplace, products such as hand cleaners, industrial cleaners, degreasers and strippers may also contain limonene as a solvent.

The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) has assessed limonene and the report was published in May 2002. Following are the main findings of the assessment.

Limonene is not very toxic. However in contact with light or air, limonene can break down to form small amounts of oxidation products. These can cause skin allergy. Contact with limonene or limonene products can cause eye and skin irritation.

Limonene is a flammable liquid and can form explosive vapour/air mixtures at above 48°C. Oxidised limonene may explode if distilled.

Some workplace products contain high concentrations of limonene. Risk to the general public of exposure to limonene is low because the majority of limonene consumer products contain low concentrations.

RECOMMENDATIONS

The report recommends that the National Occupational Health and Safety Commission classify limonene as a skin sensitiser (allergen). Suppliers should update their Material Safety Data Sheets (MSDS), labels and training materials to reflect this classification. Workplaces should take note of the following measures recommended to improve safe use:

- Use engineering controls such as local exhaust ventilation or industrial fans to improve air flow and reduce exposure;
- Use limonene-resistant gloves and other personal protective equipment (PPE), as appropriate. Refer to product MSDS;
- Handle limonene throughout its life cycle in a way that avoids oxidation. The recommended measures are:
 - storage to minimise contact with air, light and heat
 - correct choice of packaging
 - addition of antioxidants
 - precautions in handling
 - monitoring of peroxide levels, and
 - use of expiry dates;
- Do not distil oxidised limonene;
- Dispose of rags or other materials used with limonene carefully as they may catch fire. Wash them before re-use or discard in closed bins.

Limonene is a hazardous substance and is listed in the NOHSC *List of Designated Hazardous Substances*. It is listed in Class 3, flammable liquids, Packing Group III, under the Australian Dangerous Goods Code.

More information on limonene can be found in the Material Safety Data Sheet available from the supplier. The most comprehensive source of information is the detailed assessment of limonene published by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). This is available free of charge on the NICNAS web site or by calling 1800 638 528. More information on the use of industrial chemicals can be found at the NICNAS web site: www.nicnas.gov.au

