


Trisphosphates



Trisphosphates are chiefly used as flame-retardants in the production of flexible and rigid foams. They are also used in some specialist rubber products, elastomers, fibreglass resins, and industrial paints, surface coatings and sealants. Two types of trisphosphates are imported into Australia; tris (2-chloroethyl) phosphate (TCEP) and tris (1-chloro-2-propyl) phosphate (TCPP); with imports of a third kind, tris (1,3-dichloro-2-propyl) phosphate (TDCPP) soon to begin.

NICNAS conducted a preliminary assessment of trisphosphates in June 2001. The assessment found that there was not enough data on health effects and that a full risk assessment should be done.

HEALTH EFFECTS

Information available on the health effects indicates that the substances should be used with caution while more investigations are being done.

We do know that:

Trisphosphates can enter the body through the skin, swallowing or by inhalation. Exposure through the skin and eyes is most likely.

TCEP and TCPP are harmful if swallowed.

Studies in animals showed that TCEP may have short-term effects on the nervous system. Long term exposure to TCEP may cause cancer and effects on male fertility in animals.

It is possible that TDCPP may also cause cancer in animals but not enough work has been done to know if it causes cancer in humans. Effects occur at relatively low doses (< 5mg/kg/day) in animals.

There is no information available on the effects of TCPP in humans. Tests done on animals suggest that it is irritating to the eyes and skin in rabbits. Animal tests for nerve damage and birth defects were negative.

RECOMMENDATIONS

The level of occupational exposure to trisphosphates needs to be investigated.

Where any trisphosphates can be used, the one with the least current known hazards should be used.

MSDS, labels and training information need to be updated to include the European Union classification for TCEP: R40(3) Carcinogen (Category 3) – possible irreversible effects. If no information is available for a particular trisphosphate this should be clearly stated.

Training in the use of the hierarchy of controls, including the use of personal protective equipment, should be provided for those working with these chemicals.

Of the three trisphosphates discussed only TCEP is classed as a Hazardous Substance. The Preliminary Report recommended that the revised European Union classification for TCEP be adopted.

No exposure standard has been set.

Trisphosphates are not listed in the Australian Dangerous Goods Code and Poisons Schedule.

More information on trisphosphates can be found in the Material Safety Data Sheet available from the supplier. A comprehensive source of information in Australia is the preliminary assessment published by The National Industrial Chemical Notification and Assessments Scheme (NICNAS). This is available free of charge on the NICNAS website or by calling 1800 638528. More information on the use of industrial chemicals can be found at the NICNAS website: www.nicnas.gov.au

