

Triglycidylisocyanurate (TGIC)

Triglycidylisocyanurate (TGIC) is used in various polyester powder coatings in the metal finishing industry. NICNAS first assessed TGIC in April 1994. New research into health effects has since been completed and so TGIC was reassessed in February 2001. These are the main findings of both assessments.

There is still not enough information about the long-term health effects of TGIC.

However, we do know that:

TGIC can enter the body through the skin, swallowing or by inhalation. Of these, breathing TGIC dust is by far the most likely way for poisoning to occur.

Swallowing or breathing TGIC can cause damage to the lungs, kidneys and gastric system.

Over time, in some people, the skin and airways become more sensitive to TGIC so that very little is needed to produce a harmful reaction.

TGIC can cause serious eye damage.

Animal studies show TGIC may cause genetic damage.

There is not enough information on the potential of TGIC to cause reproductive effects.

RECOMMENDATIONS

Workplace surveys show that many workers are being exposed to TGIC. Exposure can occur during all phases of the manufacturing process and at all stages during the use of powder coatings containing TGIC.

The levels of exposure common in metal finishing workshops is of particular concern.

In these workshops:

1. Restrict access to the booth. Use spray booths which are the right size, with good air flow and exhaust ventilation, few openings and stagger the openings when more than one manual spray gun is used.
2. Avoid dust – no sweeping.
3. Maintain personal hygiene.
4. Overalls, safety glasses, gloves, and a filtered air hood or powered air respirator are to be worn when, filling hoppers, manually spraying and cleaning the booth.
5. Gloves and disposable masks are to be worn during the clean-up of spills and maintenance work.

During manufacturing of powder coatings:

1. Avoid dust containing TGIC – vacuum, don't sweep dust.
2. Isolate and automate as much of the process as possible.
3. Enclose mixers.
4. Maintain and install local exhaust ventilation in areas where dust may be generated.
5. Train workers in safe work practices and the use of correct personal protective equipment.

The national exposure standard is an average exposure level of 0.08 mg/m³. However, since TGIC is a sensitiser levels should be kept as low as possible.

A product containing more than 0.1% TGIC is classed as a Hazardous Substance.

TGIC is not included in the Australian Dangerous Goods Code or in the Poisons Schedule.

More information on TGIC can be found in the Material Safety Data Sheet available from the supplier. A comprehensive source of information is the detailed assessment of Triglycidylisocyanurate 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 638 528. More information on the use of industrial chemicals can be found at the NICNAS website: www.nicnas.gov.au