

NVP

N-vinyl-2-pyrrolidone (NVP) is a chemical mainly used in the manufacture of ultraviolet screen printing inks and paper coatings. Polyvinyl pyrrolidone, a polymer containing NVP is widely used in cosmetics, pharmaceuticals, and agricultural preparations.

NICNAS assessed NVP in April 2000. These are the main findings of the assessment. The assessment found that there is much still unknown about NVP and its effects in humans.

Workplace substances containing 1% NVP or more should be classified as a Hazardous Substance. Most ultraviolet inks and paper coating products which contain NVP will fall into the Hazardous Substances category.

NVP is not yet listed under the Australian Dangerous Goods Code. It is not flammable as it is normally used but may decompose to toxic fumes if exposed to heat or flame.

There is a lack of information about the health effects of NVP in humans. However, animal studies show that prolonged low level exposure to NVP may cause cancer.

Animal studies show that NVP poisoning can occur through the skin, swallowing or by inhalation.

There may be no immediate physical signs of NVP poisoning. NVP poisoning may occur by breathing in vapours during formulation of NVP products and the use of UV curing inks. These vapours may be close to the level at which NVP caused damage including cancer of the liver and nose in animal studies.

Splashes with liquid containing NVP can cause serious eye damage.

The main risk from NVP is from breathing it in.

RECOMMENDATIONS

- If a safer product or process can be substituted for one involving NVP, this should be done.
- The level of NVP in formulations should be reduced to the lowest possible levels.

NVP should be mixed in enclosed chambers to eliminate vapours. When full enclosure isn't possible, local exhaust ventilation is recommended. Exhaust ventilation should also be provided in cleaning areas. Dilution ventilation should be provided for all production areas. The air quality should be monitored.

Workers using NVP should be trained how to use it safely:

- Direct handling of NVP should be avoided. Minimal amounts of inks should be placed on silk screens and inks should immediately be washed off screens. Dirty silk screens should not be left in the room. No eating, drinking, or smoking in rooms containing NVP products.
- Avoid skin and eyes coming into contact with NVP. Wear gloves, long sleeved shirts and trousers and eye protection when splashes are possible, such as during mixing. A mask with an organic vapour cartridge should be used when exposures are likely to be high, as when mixing raw NVP or cleaning large spills.

It was not possible to identify a safe exposure level for NVP. Animal data suggests that damage occurs at very low levels.

More information on NVP can be found in the Material Safety Data Sheet available from the supplier. The most comprehensive source of information is the detailed assessment of NVP 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 web site: www.nicnas.gov.au