

*“Ensuring the future of
Australia’s Dynamic
Pipeline Industry”*

Date: 1 December 2010

APIA Safety Alert

Care when Handling Polymer Concrete

Overview

Polymer concrete, (liquid coating) is a 2 part liquid epoxy based product commonly used in the Pipeline Industry. Its main purpose is to protect the fusion bonded epoxy coating on steel pipe under severe handling conditions.

Polymer concrete is a hazardous substance which has the potential to cause acute (short term) conditions in its uncured state. A component of this material is corrosive and direct contact can be severely irritating to the skin and may result in redness, swelling, burns and severe skin damage. Repeated contact may cause an allergic skin reaction in sensitised individuals.

There is insufficient information available on this material to predict the effects from skin absorption; however persons with pre-existing skin disorders may be more susceptible to the effects of this material.

Eye Contact with this material may cause moderate eye irritation. Direct contact with liquid or exposure to vapours or mists may cause stinging, tearing, and redness.

Ingestion (swallow) of this material is highly unlikely. There is insufficient information available on this material to predict the effects from ingestion.

Inhalation (breathing) of vapours or mists may cause nose, throat and respiratory tract irritation. Repeated exposure may cause an allergic respiratory reaction (asthma) in sensitised individuals. Pre-existing lung disorders (e.g. asthma-like conditions) may be aggravated by exposure to this material.

Chronic (long term) conditions may apply under certain conditions of use, such as sanding the cured product where dusts may be formed. Contact with dusts may be abrasive and irritating to the eyes, skin and the respiratory tract. Prolonged or repeated overexposure to dusts may result in chronic bronchitis (lung inflammation) with symptoms of coughing and shortness of breath. Persons with pre-existing eyes and skin disorders may be more susceptible to the effects of dust exposure. Respiratory symptoms associated with pre-existing lung disorders (e.g. asthma-like conditions) may be aggravated by exposure to dusts.

Under Occupational Health and Safety legislation Australia wide, it is a requirement to ensure an MSDS is available for all hazardous substance being used, that all associated risks are assessed (SWMS, JSA, etc), appropriate preventive measures implemented to protect employees against the effects of exposure and all employees are trained in the proper use and associated risks of the substance.

Incident

An incident occurred when a member of a pipe joint coating crew suffered an allergic reaction to polymer concrete in the form of swelling and redness to his forehead area. The employee was performing pipe coating repair tasks.

The reaction occurred over a period of time with regular exposure to the substance. Following is a timeline demonstrating a progressive exposure and worsening of the employee's condition.

- Day 1:** The employee was conducting coating repairs and felt what he thought was sun burn on his forehead. Believing that it was nothing more than that, he continued his normal duties.
- Day 2:** The employee was still feeling the effects of what he thought was sun exposure, although the area of concern appeared a little redder and more irritated than the previous day.
- Day 3:** The employee was still feeling the effect of what he thought was sun exposure. The employee left site to get skin cream and apply it to the affected area. On returning to the site it was suggested that the irritation may be from exposure to Polymer Concrete. After finishing his shift the employee believed that his condition was getting worse as his forehead area had started to swell. The employee was taken to the local hospital for review. It was determined that the employee had suffered an allergic reaction to a chemical substance.

Outcomes

Medical advice was issued to ensure the affected employee was not exposed to the product again.

The employee believed he may have made hand contact with the Polymer concrete material after removing his protective gloves on completion of a repair.

The employee stated that he wiped his hand across his forehead and handled his hard hat which may have contaminated the hard hat sweat band.

The employee stated that he felt no other ill-effects apart from the irritation and swelling to his forehead area.

Some personnel are more susceptible to the product than others (e.g. persons with existing skin conditions).

Prevention

The following information must be considered for the preparation and use of all hazardous substances and chemicals:

- Ensure the correct PPE is available in accordance with the product MSDS and all employees conducting the task are trained in the correct use of that PPE (impervious gloves, eye protection, respiratory protection as required, disposable overalls, etc);
- Ensure Safe Work Method Statements detail the hazards and preventive measures for all hazardous substances /chemicals being used;
- Ensure all employees are aware of the risks associated with the use of hazardous substances (skin

Care when handling (Polymer Concrete)

contact/absorption, eye contact, inhalation or ingestion) with which they are using and/or may come into contact with and are conversant with the requirements of the SWMS and applicable MSDS;

- Reiterate the importance of reporting all health conditions/incidents immediately to the crew Supervisor and the OHS Advisor, no matter what the individual may think the problem is (eg. ill health). The crew Supervisor and the OHS Advisor must be informed immediately to ensure the affects of ill health do not progress, medical attention can be sought as required and risks can be mitigated for the protection of all personnel;
- Ensure appropriate pre-employment health assessments (lung capacity tests, chest X-rays, etc) are conducted and the appropriate management are aware of any individuals conditions which may be aggravated from exposure to hazardous substances or chemicals (e.g. asthma-like conditions, skin irritations, etc);