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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION  
AND ASSESSMENT SCHEME**

**FULL PUBLIC REPORT**

**XR-9003**

This Assessment has been compiled in accordance with the provisions of *the Industrial Chemicals (Notification and Assessment) Act 1989*, and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by Worksafe Australia which also conducts the occupational health & safety assessment. The assessment of environmental hazard is conducted by the Commonwealth Environment Protection Agency and the assessment of public health is conducted by the Department of Health, Housing, Local Government and Community Services.

For the purposes of subsection 78(1) of the Act, copies of this full public report may be inspected by the public at the Library, Worksafe Australia, 92-94 Parramatta Road, Camperdown NSW 2050, between the hours of 10.00 a.m. and 12.00 noon and 2.00 p.m. and 4.00 p.m. each week day except on public holidays.

Under subsection 34(2) of the Act the Director of Chemicals Notification and Assessment is to publish this Report in the Chemical Gazette on .

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Director  
Chemicals Notification and Assessment

*FULL PUBLIC REPORT*

**FULL PUBLIC REPORT****XR-9003****1. APPLICANT**

Abel, Lemon and Bleakley, 26 Fariola St, Silverwater, NSW,  
2141

**2. IDENTITY OF THE POLYMER**

Based on the nature of the chemical and the data provided, XR-9003 is not considered to be hazardous. Therefore, the chemical identity, exact molecular weight of the polymer and low molecular weight species, exact use, appearance, import volume and site of reformulation have been exempted from publication in the Full Public Report.

**Trade name:** Aquatac 6085 is a 30% aqueous dispersion of the notified polymer XR-9003

**Number-average molecular weight:** > 1000

**Means of identification (List of spectral data available):**

IR spectrum

**3. PHYSICAL AND CHEMICAL PROPERTIES**

**Melting Point:** 64°C

**Specific Gravity/Density:** 1167 kg/m<sup>3</sup>

**Water Solubility:** < 1 mg/L at 20°C  
(predicted)

**Comments on the physico-chemical properties**

Consideration of the constituents of the notified polymer suggests that its water solubility should be well below the Polymer of Low Concern criteria of < 1 mg/L.

Hydrolysis of the notified polymer is theoretically possible on the basis of structure, but is unlikely under environmental conditions due to the low solubility.

The polymer is nonflammable, will not autoignite, is not explosive and is not expected to be reactive.

The polymer will be imported as a 30% aqueous dispersion so that particle size is not a relevant physico-chemical property. The physico-chemical properties of the dispersion approximate to water and are outlined on the MSDS for Aquatac 6085.

#### **5. INDUSTRIAL USE**

The polymer will be used as a component of various adhesives.

#### **6. OCCUPATIONAL EXPOSURE**

The polymer will be imported in robust steel drums/containers as a 30% aqueous dispersion (Aquatac 6085) at 10 tonnes per year for the first 5 years.

During import, transport and storage about 5 to 6 workers will handle the containers and exposure is expected to be negligible.

The polymer will be reformulated into adhesives by about 20 workers at 5 sites throughout Australia. Typically, reformulation involves adding the aqueous polymer dispersion by pump to mixing vessels with paddle stirrers. During these processes exposure is likely to be low as they are automated and are carried out under local exhaust ventilation.

Once blended, the adhesives containing the notified polymer are drummed, sealed and onsold to paper product manufacturers. The final concentration of the notified polymer in the adhesives is about 2 - 5%.

Application of the adhesives to paper products is automated and involve little worker contact with the notified polymer. Typically, the adhesives are pumped under pressure into holding tanks of automatic application machines in which the rollers which coat the paper with adhesive are gravity or pressure fed.

#### **7. PUBLIC EXPOSURE**

Public exposure to the notified polymer during its distribution is not expected to occur.

The notified polymer is of low volatility and no public exposure is expected during the reformulation processes.

The waste will be washed to sewer or sent to landfill and no public exposure to the polymer is expected to occur.

Adhesives containing the notified polymer will be sold to paper and packaging companies, where it will be incorporated into paper products. Use of products containing the notified polymer is expected to result in extensive public exposure.

## **8. ENVIRONMENTAL EXPOSURE**

### **. Release**

Approximately 10 tonnes per year of AQUATAC 6085 will be imported into Australia in steel drums containing a 30% aqueous dispersion of the notified chemical. Reformulation into a number of adhesive products will be conducted at 5 to 10 sites. It is anticipated that from the 10 tonnes imported, approximately 300 tonnes of adhesive will be manufactured (making a 3.5% final concentration of AQUATAC 6085 in the final product).

During reformulation, AQUATAC 6085 is added by pump to mixing vessels under local ventilation. The products are then drummed off and sold to paper product manufacturers.

Losses of the polymer (as residues in drums, mixing vessels and so on) during reformulation are expected to be in the range of 1 to 2% of the total product, ie. on average 150 kg of polymer per year following reformulation. These would conceivably go either to sewers following release or to landfill, but no specific data is given by the company.

Following reformulation, the product will be shipped by road, in robust steel containers, to paper product producers. Storage of the product is anticipated in general purpose warehouses.

Losses during application to paper products are expected to be in the vicinity of 1.5%. This equates to approximately 4.5 tonnes of adhesive lost during application. As the polymer forms approximately 3.5% of the adhesive, wastes in the vicinity of 158 kg of polymer per year are expected. Although no specific information is supplied by the company as to the ultimate fate of these wastes, they would conceivably either go to sewers, through the flushing of lines, drums and storage tanks, or be disposed of in landfill.

Total environmental exposure as a result of both reformulation and paper commodity production therefore are expected to total 308 kg per 10 tonnes imported per year.

No estimates have been given on the expected release of the adhesive from recycling of paper, incineration or landfill

disposal of used paper products, but such releases are expected to be widely dispersed in low concentrations.

. **Fate**

The polymer will be bonded to paper products as a result of normal use. It may be disposed of to sewers following reformulation, and to landfill, or burnt, on paper products. Although no information was supplied regarding environmental fate, hydrolysis and biodegradation would occur very slowly, if at all.

The low water solubility and high molecular weight of the polymer should mean that any wastes entering waterways should become immobile in sediments.

**9. ASSESSMENT OF ENVIRONMENTAL EFFECTS**

No ecotoxicological data were provided, which is acceptable for polymers of low concern. No toxic effects are anticipated from a polymer of very low solubility and high molecular weight.

**10. ASSESSMENT OF ENVIRONMENTAL HAZARD**

AQUATAC 6085 would not be expected to have ecotoxic properties. It is expected to enter the environment in relatively small quantities. The predicted environmental hazard is therefore expected to be small.

**11. ASSESSMENT OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY EFFECTS**

XR-9003 has been notified as a synthetic polymer of low concern under section 23 for the purposes of section 24A of the *Industrial Chemicals Notification and Assessment Act 1989*.

The notified polymer has a number average molecular weight well above 1000 and, as such, is not expected to cross biological membranes. As a result adverse health effects would not be expected to result from exposure to the polymer.

The polymer would not be classified as a hazardous substance on the basis of the levels of residual monomers.

Exposure of workers to the polymer during import, transport, storage, reformulation and application is expected to be low as a result of engineering controls and the use of robust containers.

The low expected intrinsic toxicity of the polymer and low exposure suggests that the occupational health risk is minimal. However, skin contact could be prolonged if skin exposure to adhesives occurs and this should be avoided.

Although extensive public exposure to low concentrations of the notified polymer is expected to occur, it is expected that it will not pose a significant public health risk.

The polymer meets the criteria for a synthetic polymer of low concern specified in regulation 4A of the Act and can therefore be considered to be of low hazard to human health.

## **12. RECOMMENDATIONS**

To minimise occupational exposure to XR-9003 the following guidelines and precautions should be observed:

- . if engineering controls and work practices are insufficient to reduce exposure to XR-9003 to a safe level, then personal protective devices which conform to and are used in accordance with Australian Standards (AS) for eye protection (AS 1336, AS 1337) (1,2), impermeable gloves (AS 2161) (3) and protective clothing (AS 3765.1, 3765.2) (4,5) should be worn.
- . precautions should be taken to avoid adhesives containing the notified polymer coming into contact with the skin.
- . good work practices should be implemented to avoid spillages.
- . good personal hygiene should be adopted.
- . a copy of the Material Safety Data Sheet should be easily accessible to employees.

## **13. MATERIAL SAFETY DATA SHEET**

The Material Safety Data Sheet (MSDS) for Aquatac 6085 containing the notified polymer was provided in Worksafe Australia format (6).

This MSDS was provided by Abel, Lemon and Bleakley as part of their notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of Abel, Lemon and Bleakley.

## **14. REQUIREMENTS FOR SECONDARY NOTIFICATION**

Under the *Industrial Chemicals (Notification and Assessment) Act 1989*, secondary notification of XR-9003 shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. No other specific conditions are prescribed.

## 15. **REFERENCES**

1. Australian Standard 1336-1982, *Recommended Practices for Eye Protection in the Industrial Environment*, Standards Association of Australia Publ., Sydney, 1982.
2. Australian Standard 1337-1984, *Eye Protectors for Industrial Applications*, Standards Association of Australia Publ., Sydney, 1984.
3. Australian Standard 2161-1978, *Industrial Safety Gloves and Mittens (excluding Electrical and Medical Gloves)*, Standards Association of Australia Publ., Sydney, 1978.
4. Australian Standard 3765.1-1990, *Clothing for Protection Against Hazardous Chemicals, Part 1: Protection Against General or Specific Chemicals*, Standards Association of Australia Publ., Sydney, 1990.
5. Australian Standard 3765.2-1990, *Clothing for Protection Against Hazardous Chemicals, Part 2: Limited Protection Against Specific Chemicals*, Standards Association of Australia Publ., Sydney, 1990.
6. National Occupational Health and Safety Commission, *Guidance Note for the Completion of a Material Safety Data Sheet*, 2nd. edition, AGPS, Canberra, 1990.