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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

ACRYLOID 1265 MAJOR POLYMER

This Assessment has been compiled in accordance with the provisions of *the Industrial Chemicals (Notification and Assessment) Act 1989,* as amended 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 Department of the Environment, Sport, and Territories 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 4.1 p.m. each week day except on public holidays.

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Director
Chemicals Notification and Assessment

FULL PUBLIC REPORT

ACRYLOID 1265 MAJOR POLYMER

1. APPLICANTS

Rohm and Haas Australia Pty Ltd, 969 Burke Rd, Camberwell, Victoria, 3124 and Lubrizol Australia Pty Ltd, 28 River St, Silverwater, NSW, 2141.

2. IDENTITY OF THE CHEMICAL

Based on the nature of the chemical and the data provided, Acryloid 1265 major polymer is considered to be non-hazardous. Therefore, the chemical identity, molecular and structural formulae and the nature of a certain additive have been exempted from publication in the Full Public Report and the Summary Report.

Trade name: Acryloid 1265, also called Acryloid 1265 oil additive contains a related acrylic copolymer, 45% of the notified polymer, and neutral oil. Lubrizol 9652, the product to be imported, contains 40-55% Acryloid 1265.

Number-average molecular weight: 38700

Weight-average molecular weight: 208000

Maximum percentage of low molecular weight species (molecular weight < 1000): 2.5%

Method of detection and determination:

Infrared Spectroscopy

3. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa: clear viscous liquid

Glass-transition Temperature: -45°C

Density: 874.6 kg/m^3

Water Solubility: <2.1 ppm at 20°C

Autoignition Temperature: >300°C

Explosive Properties: None

Decomposition Products: Above 204°C, thermal decomposition may yield methacrylate monomers

Reactivity/Stability: May decompose above 204°C. May react with strong oxidising agents.

Comments on physico-chemical properties:

Because of its high molecular weight, the notified polymer is not expected to have a measurable boiling point or vapour pressure.

Attempts to measure hydrolysis at pH 2 and pH 9 were unsuccessful due to the low water solubility of the notified polymer and partition coefficient, adsorption/desorption and dissociation constant were not measurable for the same reason.

4. PURITY OF THE CHEMICAL

Degree of purity: ≥97.9%

Toxic or hazardous impurities: None

Non-hazardous impurities (> 1% by weight): None

Maximum content of residual monomers: 1.47%

Additives/Adjuvants: None

5. INDUSTRIAL USE

The notified chemical is to be used as an additive for automotive transmission fluids. It will be imported in 200 kg steel drums as 40-55% by weight of a formulation (Acryloid 1265) including a related acrylic copolymer together with dispersants, detergents and anti-foaming agents.

About 100 tonnes of the notified chemical will be imported in the first year and about 200 tonnes per year for the following four years.

6. OCCUPATIONAL EXPOSURE

At the Lubrizol Australia plant drums containing Lubrizol 9652 are manually decanted by 2 workers into an additive pan. This process is carried out under fume extraction and is expected to take about 30 minutes. Total exposure from this source is expected to be about 100-200 hours per year.

The Lubrizol 9652 is pumped from the pan through a sealed system into a sealed 1 tonne container. The sealed one tonne container is transported to one of 4 blending plants.

At the blending plants, the 1 tonne container is drained through a sealed system into a bulk storage tank. The Lubrizol 9652 is then pumped through a sealed system to a blending vessel where it is blended with mineral oil and possibly other additives. The final concentration of Acryloid 1265 is < 10%. After blending, the final product is packaged in 1 - 205 litre containers for sale to the general public or shipped in larger containers to car manufacturers for use in automatic transmissions.

7. PUBLIC EXPOSURE

The public may be exposed to the notified polymer in a final blended commercial product which is used in automobile transmissions.

8. ENVIRONMENTAL EXPOSURE

. Release

Release to the environment of the notified substance may occur during transport, blending, and at disposal when the automatic transmission fluid is changed during routine vehicle servicing.

Regarding release during transport, before blending the notified substance is in containers that offer protection and containment in case of accident. After blending the final form of the notified substance is transported to point of sale in bulk tankers or in single use retail packs.

The blending process takes place at the lubricating oil formulation plants of the oil company. These plants are sealed systems from input of raw material to output of finished product, are situated within perimeter bunding and also have localised spill containment collection areas.

. Fate

Acryloid 1265 major polymer could enter the environment if spillage occurs during the formulating/blending process. However, this is unlikely as efficient means of containment and collection exist at the formulating plants and the spillage collections are usually disposed of by incineration.

At the end of the useful life of the notified substance as an automatic transmission fluid, the waste oil is usually collected from the service station and disposed of by the waste oil collection service who usually sell the oil to users for incineration in processes such as cement kilns (1).

9. ASSESSMENT OF ENVIRONMENTAL EFFECTS

No ecotoxicological data were provided, which is acceptable for polymers of NAMW > 1000 according to the Act.

10. ASSESSMENT OF ENVIRONMENTAL HAZARD

The polymer is unlikely to present a hazard to the environment when it is blended, packed and used as specified.

The notified substance is also unlikely to present a hazard to aquatic organisms due to its high molecular weight and low bioavailability.

Significant environmental exposure is not expected to arise from disposal by incineration in high temperature kilns. The combustion of waste and used automatic transmission fluid results in the complete breakdown of the product. The predicted environmental hazard is minimal.

11. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY EFFECTS

As the notified chemical is a high molecular weight polymer, it is unlikely to cross biological membranes and is, therefore, unlikely to present a significant health hazard. The physico-chemical properties of the notified chemical suggest that it is stable at ambient temperature and can be used safely.

Coupled with the low intrinsic health hazard of the notified polymer is a low potential for occupational exposure. The low exposure is due to the extensive use of sealed systems by both the importer and the reformulator prior to packaging for sale to the public or to car assembly plants.

The levels of low molecular weight polymers and residual monomers are low enough so that the notified chemical is unlikely to present a significant health hazard if leaching occurred into the mineral oil which is the main ingredient of the formulations.

From the foregoing considerations, it can be concluded that the use of the notified chemical is unlikely to present a significant health hazard.

It is considered that Acryloid 1265 major polymer will not pose a significant hazard to the public when used in the proposed manner but that normal precautions should be taken to prevent skin and eye contact with automobile transmission fluid containing it.

12. RECOMMENDATIONS

To minimise occupational exposure to Acryloid 1265 major polymer the following guidelines and precautions should be observed:

. if engineering controls and work practices are insufficient to reduce exposure to Acryloid 1265 major polymer 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) (2,3), impermeable gloves (AS 2161) (4) and protective clothing (AS 3765.1, 3765.2) (5,6) should be worn;

. a copy of the Material Safety Data Sheet should be easily accessible to employees.

13. MATERIAL SAFETY DATA SHEET

The Material Safety Data Sheets (MSDS) for Acryloid 1265 oil additive (Attachment 1) and Lubrizol 9652 (the blend to be imported) (Attachment 2) were provided in Worksafe Australia format (7) or an acceptable format.

These MSDS were provided by Rohm and Haas Australia Pty Ltd and Lubrizol Australia Pty Ltd as part of their notification statement. They are reproduced here as a matter of public record. The accuracy of this information remains the responsibility of Rohm and Haas Australia Pty Ltd and Lubrizol Australia Pty Ltd.

14. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the *Industrial Chemicals (Notification and Assessment) Act 1989*, as amended (the Act), secondary notification of Acryloid 1265 major polymer 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 and New Zealand Environment and Conservation Council, *Waste Lubricating Oil, Used Motor Vehicle Tyres Recycling and Reuse*, Final Report.

2. Australian Standard 1336-1982, *Recommended Practices for Eye Protection in the Industrial Environment*, Standards Association of Australia Publ., Sydney, 1982.

3. Australian Standard 1337-1984, *Eye Protectors for Industrial Applications*, Standards Association of Australia Publ., Sydney, 1984.

4. Australian Standard 2161-1978, *Industrial Safety Gloves and Mittens (excluding Electrical and Medical Gloves)*, Standards Association of Australia Publ., Sydney, 1978.

5. 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.

6. 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.

7. National Occupational Health and Safety Commission, *Guidance Note for the Completion of a Material Safety Data Sheet*, 2nd. edition, AGPS, Canberra, 1990.