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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

FULL PUBLIC REPORT

OHM R 630

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**Director
Chemicals Notification and Assessment**

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FULL PUBLIC REPORT**OHM R 630****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Crompton Specialties Pty Ltd (ABN: 18005225507)
Unit 2, 13 Stanton Road,
Seven Hills, NSW 2147

NOTIFICATION CATEGORY

Synthetic Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

- Import volumes
- Chemical name
- CAS number
- Molecular and Structural Formulae
- Molecular Weight
- Spectral Data
- Polymer Constituents

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

OHM R 630

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
No Substantial Degradability	Yes
Not Water Absorbing	Yes
Low Concentrations of Residual Monomers	Yes
Not a Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	30-100	30-100	100-300	100-300	100-300

USE

Used in the manufacture of polyurethane moulded items.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The notified polymer will be imported in 200 L drums as 100% active material. It will be transported from the wharf to contract warehouse in St. Marys for storage, before it is sent to shoe manufacturers for manufacture of shoe soles. Truck drivers will transport the sealed OHM R 630 drums by road from the wharf to the contact warehouse and then as needed to the customer warehouse. Two incoming goods receiving personnel will unload the drums of OHM R 630 and store them in designated storage areas. The only chance of exposure for these workers will be in the case of damaged containers or in case of an accidental spill.

The polymer will be used to manufacture shoe soles at the customer's shoe manufacturing site. Manufacture of the shoe soles involve the following processes — removing the lid of the 200 L drum containing the notified polymer, and manually adding small amounts of other ingredients to the 200 L drum. The drum is then placed in an enclosed mixing chamber and heated up to 50°C and mixed. The resultant mixture is then pumped into a hopper and gravity fed into a mixing head where mixing with the isocyanate component takes place in an approximately 1:1 ratio. The mixture is then injected directly into the moulding machine to produce the shoe soles. The process is enclosed and automated. The machining is in a bunded area and under local ventilation.

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
<i>Transport and Storage</i>			
Transporting from dock to contract warehouse for storage before supplying to Shoe manufacturers for manufacture of soles (loading/unloading trucks)	2	2-3 hours/day	10-15 days/year
<i>Shoe Manufacturers</i>			
Mixture make up	2	6 hours/day	52 days/year
Filling into moulds	2	6 hours/day	52 days/year
Maintenance workers	1	6 hours/day	30 days/year

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Transport and Storage: Exposure to the polymer is unlikely during transportation and storage. Exposure may result in case of an accidental spill or leak in the container. No controls are required. Gloves, coveralls and goggles are available if required.

Shoe manufacture:

Mixture make up – Workers may be exposed to the notified polymer via dermal and ocular exposure due to drips, spills and splashes during addition of other ingredients to drums and transfer of drums into enclosed mixing chamber. Workers will wear coveralls, goggles and impervious gloves. The mixing operations are enclosed and the reaction also takes place in an enclosed mixing chamber. Local ventilation is also used.

Filling into moulds: The mixture is filled into moulds by an automated process under local exhaust ventilation and workers wear overalls, goggles and impervious gloves. Therefore exposure is minimal.

Maintenance workers: There is a possibility of skin contact during equipment maintenance. Workers wear coveralls, goggles and gloves.

6.2. Summary of Public Exposure

The notified polymer will not be sold to the public. Public contact with the moulded shoe soles made from the notified polymer is likely to be high. However, exposure to the polymer itself is low, as the polymer is trapped within a matrix.

6.3. Summary of Environmental Exposure**6.3.1. Environmental Release***Release of chemical at site:*

The notified polymer will not be manufactured in Australia. Local operations will include transport and storage, blending and moulding.

The notified polymer will be transported to Australia by ship in (200 L drums, 100% active material) and will be transported directly to contract warehouse St Mary's site for warehousing before manufacture of shoe soles.

Release at the contract warehouse site to the environment may occur in the unlikely event of an accident during transport or an accidental leak. It is estimated that a maximum of 1% of the notified chemical (~ 3 tonnes per 5th year of notified polymer) would be lost during spillage. Spills are contained and soaked up with inert absorbent material (sand, earth, vermiculite) and placed in a sealable container and disposed of to landfill.

The residue and empty drums will be collected by licensed waste contractors. The drums will be disposed off to landfill. The total residues in the drums are expected to account for up to 3000 kg/year of the notified polymer, based on the 300 tonnes/year imported volume.

The sole manufacturing operations will take place at the shoe manufacturer's site (possibly at 1-5 customer sites). It is anticipated that there will be minimal release of the notified polymer during addition of other ingredients to the drum in which the notified polymer is supplied and mixing and heating in an enclosed mixing chamber under local ventilation. Blending occurs in fully enclosed systems. The resultant mixture is then poured through a pipe/line into a prepared shoe mould. The mixers and pipes are cleaned with suitable solvents, which will be collected and disposed of by licensed waste disposal contractors. It is estimated that approximately 2% of the notified polymer (~ 6 tonnes per 5th year of notified polymer) would be lost this way. Any spills incurred in the shoe sole manufacturing operations will be contained by absorbing on inert material e.g. sand, earth, vermiculite and placing in a sealed container for disposal by licensed waste disposal contractors. Solid waste will be treated in a similar manner. There will be no release of the notified polymer to sewer.

Release of chemical from use

The finished product (shoes soles) containing the notified polymer will be incorporated into footwear. There will be no release to sewer during end-use of the products containing the notified polymer.

6.3.2. Environmental Fate

Environmental fate of spills, waste generated from operational procedures, residues in drums and waste from cleaning equipment are covered above in detail.

The majority of the reacted notified polymer will follow the fate of the shoes into which it is incorporated. It is anticipated that most of the shoes will eventually be disposed of in domestic landfill sites. In landfill, the polymer is expected to slowly degrade through biotic and abiotic processes. It is unlikely that the notified polymer will leach from soil or reach natural water compartments, given that it is insoluble in water.

The polymer is not expected to cross biological membrane, due to its high molecular weight and it being insoluble in water, and as such should not bioaccumulate.

7. ESTABLISHMENT OF LOW PHYSICAL AND CHEMICAL HAZARD

Appearance at 20°C and 101.3 kPa	Pale yellow liquid. The polymer has a viscosity 27.500 mPa.s at 25 deg C.
Melting Point/Glass Transition Temp	The polymer is a liquid at room temperature.
Density	1.18 at 20°C
Water Solubility	Insoluble in water
Reactivity	The polymer is stable under normal conditions and polymerisation will not occur. Avoid contact with strong oxidising agents.
Degradation Products	The polymer is not expected to undergo degradation.

7.1. Comments

The notified polymer is hygroscopic. The polymer is insoluble in water. The ester functionalities are not expected to hydrolyse in the environment in the pH of 4-9. The polymer is expected to partition in the octanol phase due to water insolubility. The polymer is not expected to be mobile in soil given its insolubility in water.

8. ESTABLISHMENT OF LOW HUMAN HAZARD

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

No toxicity studies were submitted. The notified polymer contains low concentrations of residual monomers and has no high concern reactive functional groups. Since the notified polymer has high molecular weight, absorption across biological membranes and resultant systemic toxicity would be limited. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No ecotoxicological data were submitted.

9.2. Environmental Hazard Assessment

No toxicological data were submitted. The notified polymer meets the criteria for a polymer of low concern and therefore is not expected to be hazardous to aquatic species.

10. RISK ASSESSMENT

10.1. Environment

Release of the notified polymer to the aquatic environment is not expected. A small amount of the polymer will be released at the manufacturing site as a result of spillage and in the form of solid waste and solvent waste during shoe sole manufacture and as residue in used drums.

These wastes and residues will be collected at the site by licensed waste contractor for disposal.

The majority of the reacted notified polymer will follow the fate of the shoes into which it is incorporated. It is expected that most of the shoes will eventually be disposed of in widely distributed landfill sites. In landfill, the polymer is expected to slowly degrade through biotic and abiotic processes, and the polymer is expected to eventually become part of the soil matrix. The polymer is not expected to bioaccumulate or leach from the soil into water compartments because it is insoluble in water.

Given the above considerations, the overall environmental hazard is expected to be low.

10.2. Occupational health and safety

The notified polymer will be processed in a closed system with local ventilation to remove any fumes. All ingredients are added to the notified polymer in the 200 L drum. The drum is then placed in an enclosed mixing chamber and heated up to 50°C and mixed. The resultant mixture is then pumped into a hopper and gravity fed into a mixing head where mixing with isocyanate component takes place and then into the injection moulding machine. The process is enclosed and automated. The machining is in a bunded area and under local ventilation. The most likely points at which exposure may occur is when manually adding other ingredients to the 200L drum containing the notified polymer, through incidental skin and eye contact. Inhalation exposure is unlikely to the notified polymer. The workers at the manufacturing site wear gloves, overalls and eye protection. Given the engineering controls and supplementary personal protective clothing (PPE), the health risk for workers at the manufacturing site is expected to be low.

Exposure of transport and storage workers is only possible in the event of accidental spillage. The health risk for transport and storage workers handling the notified polymer is expected to be negligible.

The notified polymer is of low hazard to human health and safety. The control measures in place during manufacturing and during quality control and transfer operations will ensure sufficient protection against the notified polymer. Therefore, the notified polymer is of low concern to human health and safety and no specific risk reduction measures are necessary.

10.3. Public health

The general public will not come into contact with the OHM R 630. The only scenario where the general public would have any direct exposure to the OHM R 630 would be in the event of a spill from a drum that had been imported or if drums of notified polymer were to be spilled. Such a spill could only occur during transport from the wharf to the warehouse and transport from the warehouse to the shoe manufactures site. The notified polymer in the shoe sole will be encapsulated within an inert, high molecular weight matrix, rendering the notified polymer biologically unavailable. Therefore the risk of exposure of the general public to the notified polymer is considered low.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.2. Environmental risk assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is no concern to occupational health and safety under the conditions of the occupational

settings described.

10.3.2. Public health

There is negligible concern to public health based on use pattern.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

12. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- No specific precautions are required to control exposure to the notified polymer. However, in the interests of good occupational health and safety, the following guidelines and precautions should be observed.:

-Employers should implement the following engineering controls to minimize occupational exposure:

- Exhaust ventilation during manufacture, blending and filling processes
- Enclosed and automated manufacture process

-Employers should implement the following safe work practices to minimize occupational exposure:

- During transfer of notified polymer into chamber, avoid spills and splashing
- Employers should ensure that the following personal protective equipment is used by workers to minimize occupational exposure to the notified polymer:
 - Chemical resistant gloves
 - Protective clothing which protects the body, arms and legs
 - Eye protection when splashes are generated.

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- A copy of the MSDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

Disposal

- The waste resulting from spills and cleaning should be collected by licensed contractor for disposal.

Storage

- Hygroscopic substance. Protect from moisture

Emergency procedures

- Spills/release of the notified polymer should be contained by soaking up with inert

absorbent material and dispose of as special waste in compliance with local and State regulations as recommended in the MSDS.

- Use suitable solvent in cleaning up.
- Prevent product from entering drains.

13.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 64(1) of the Act; if
- the notified polymer is introduced in a chemical form that does not meet the PLC criteria.

or

- (2) Under subsection 64(2) of the Act:
- if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

No additional secondary notification conditions are stipulated.