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

FULL PUBLIC REPORT

Polymer in Disparlon OX-6140

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of the Environment and Heritage.

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Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

**Director
NICNAS**

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Polymer in Disparlon OX-6140**1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

BASF Coatings Australia Pty Ltd
51 McIntyre Rd Sunshine Vic 3020
ABN: 91 092 127 501

and

Akzo Nobel Pty Ltd
51 McIntyre Rd Sunshine Vic 3020
ABN: 000 017 354

and

Chemiplas Australia Pty Ltd
3/112 Wellington Pde East Melbourne Vic 3002
ABN: 29 003 056 808

NOTIFICATION CATEGORY

Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Name, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Details of Use and Manufacture/Import Volume.

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)

Introduced as a component of Disparlon OX-6140 (30-60% notified polymer)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) > 10000

REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

3. 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
Stable Under Normal Conditions of Use	Yes
Not Water Absorbing	Yes
Not a Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

The polymer is never isolated from solution, limited physicochemical data has been provided for Disparlon OX-6140, a 30-60% solution of the notified polymer in n-butyl acetate.

Appearance at 20°C and 101.3 kPa	Clear to light yellow fluid with solvent odour
Melting Point/Glass Transition Temp	Not determined. The notified polymer is never isolated from solution.
Density	913 kg/m ³
Water Solubility	Not determined. The notified polymer is never isolated from solution. The polymer is expected to be of low solubility in water because it is non-ionic in the environmental pH range of 4 to 9, of high molecular weight and contains a high level of hydrophobic groups.
Dissociation Constant	The notified polymer does not contain functional groups expected to have a dissociation constant in the environmental pH range of 4 to 9.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use.

5. 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>	< 1	1-10	1-10	1-10	1-10

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported as Disparlon OX-6140 (30-60% notified polymer) by Chemiplas Australia Pty Ltd and delivered in 200 L drums to the Akzo Nobel Pty Ltd formulation plant at Sunshine, Vic, from the wharf at Port Melbourne.

Reformulation/manufacture processes

During coating formulation, the polymer solution (containing 30-60% notified polymer) will be pumped from 200 L drums into the closed mixer. Following mixing with other ingredients, a sample of the coating formulation containing < 1% notified polymer will be removed for quality control purposes. When approved, the formulated coating is filtered and filled into 200 L drums and stored in a warehouse prior to distribution to car manufacturing facilities by road for subsequent mixing into final automotive coatings.

Use

The coating formulation containing <1% notified polymer will be pumped via a fixed line into the application tank and mixed with other ingredients. A sample may be removed for quality control purposes. The final automotive coating containing < 0.8% notified polymer will be sprayed onto car bodies by operators in a dedicated ventilated, down draft spray area. The painted cars are placed in an oven where the coating is cured.

6. HUMAN HEALTH IMPLICATIONS**6.1. Exposure Assessment****OCCUPATIONAL EXPOSURE**

Dermal and ocular exposure may potentially occur to the notified polymer at a concentration of 30-60% (pre-formulation) and < 1% (post-formulation) during certain processes involving the notified polymer such as connection and disconnection of transfer lines, collection of quality control samples, quality control testing, cleaning of the tanks and general maintenance. However, exposure to significant amounts of the notified polymer is limited because of the automated processes, and the engineering controls in place and personal protective equipment (PPE) i.e. safety glasses, gloves, and protective clothing worn by workers.

Spray painters may come into contact with the notified polymer at a concentration of < 0.8% through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimal as the spray paint is applied in a ventilated spray booth by workers using protective equipment. After application and once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable to exposure.

PUBLIC EXPOSURE

The notified polymer will not be directly available to the public. The notified polymer is used in an automotive paint that is cured prior to reaching the public. Therefore, although the public will come into contact with the exterior of car bodies, the notified polymer will not be available for exposure.

6.2. Toxicological Hazard Characterisation

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

6.3. Human Health Risk Assessment**OCCUPATIONAL HEALTH AND SAFETY**

The OHS risk presented by the notified polymer is expected to be low, based on the minimal exposure to workers and the low intrinsic hazard of the polymer.

PUBLIC HEALTH

The notified polymer is intended for use by professional spray painters in automotive manufacturing plants only, and will not be sold to the public. Following application, the notified polymer will become trapped within a film and will not be bioavailable. Therefore, exposure and hence the risk to public is considered to be negligible.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will be imported and delivered in 200 L drums (30 to 60% notified polymer) to the plant at Sunshine, Vic, from the wharf at Port Melbourne.

The polymer solution is formulated in a closed reactor and then drummed off for further processing into the coating product. There is a limited scope for accidental spillages to occur during the formulation, with a maximum of 2% of the total volume. During formulation, wastewater stream from the process area will be filtered through an interceptor pit, where the insoluble polymer will be collected and disposed of to landfill. The remaining water after polymer removal would be released to sewer in the western suburbs of Melbourne.

During formulation and use, the notified polymer is unlikely to be released into the environment except during an unanticipated spill incident, which would be collected for disposal by incinerator or landfill. Approximately 25% of the notified polymer may enter the landfill environment after use (eg. clean up waste, overspray, container residual) and a smaller proportion may be disposed of by incineration.

ENVIRONMENTAL FATE

The polymer is highly water insoluble, and is likely to preferably strongly partition to sediments and the organic fraction of soils. The high molecular weight indicates a low potential to bioaccumulate.

Notified polymer that is disposed of to landfill is expected to associate with the organic phases of the soil matrix and therefore be immobile. Over time, the notified polymer should degrade by biotic and abiotic processes to form simple carbon, nitrogen and oxygen containing compounds.

In the longer term, most of notified polymer used in automotive coating will eventually be incorporated in metal recycling programs or sent to landfill for disposal of the vehicle following its lifecycle. During metal reclamation, the notified polymer would be destroyed in furnaces and converted to water vapour and oxides of carbon and nitrogens.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. Non-ionic polymers of NAMW > 1000 are of low concern to the aquatic compartment.

7.3. Environmental Risk Assessment

During use, the notified polymer is unlikely to be released into the environment except during unanticipated spill incidents, which will be collected for disposal by incinerator or landfill. Approximately 25% of the notified polymer will enter the landfill environment arising from clean-up wastes, overspray and container residue. In the longer term, most of the notified polymer used in automotive coatings will eventually be incorporated in metal recycling programs or be sent to landfill for disposal following its lifecycle. During metal recycling, the notified polymer is expected to be thermally decomposed.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is Negligible Concern to public health when used in the proposed manner.

8.3. Level of Concern for the Environment

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

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

10. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- No specific engineering controls, work practices or personal protective equipment are required for the safe use of the notified polymer itself, however, these should be selected on the basis of all ingredients in the formulation.

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.

Disposal

- The notified polymer should be disposed of by licensed contractors to landfill.

Emergency procedures

- Spills and accidental release of the notified polymer should be handled by containment and absorption with sand, vermiculite or other adsorbent. Prevent spillage from entering drains and water courses. Collect recoverable product into labelled container from recycling. Absorb remaining product with, or other adsorbent. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains.

10.1. 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.