

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in DAOTAN® VTW 6460/35WA

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

This Public Report is available for viewing and downloading from the NICNAS website or available on request, free of charge, by contacting NICNAS. For requests and enquiries please contact the NICNAS Administration Coordinator at:

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**Director
NICNAS**

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SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
PLC/1317	Allnex Australia Pty Ltd Akzo Nobel Car Refinishes Australia Pty Ltd	Polymer in DAOTAN® VTW 6460/35WA	No	≤ 25 tonnes per annum	Component of automotive coatings

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

Environmental Risk Assessment

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Health and Safety Recommendations

- 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 (M)SDS should be easily accessible to employees.
- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (Safe Work Australia, 2015) or relevant State or Territory Code of Practice.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

Emergency Procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

Secondary Notification

This risk assessment is based on the information available at the time of notification. The Director may call for the reassessment of the polymer under secondary notification provisions based on changes in certain circumstances. Under Section 64 of the *Industrial Chemicals (Notification and Assessment) Act (1989)* the notifier, as well as any other importer or manufacturer of the notified polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is listed on the Australian Inventory of Chemical Substances (AICS).

Therefore, the Director of NICNAS must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Section 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 Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from component of automotive coatings, or is likely to change significantly;
 - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
 - the notified polymer has begun to be manufactured in Australia;
 - additional information has become available to the person as to an adverse effect of the notified polymer on occupational health and safety, public health, or the environment.

The Director will then decide whether a reassessment (i.e. a secondary notification and assessment) is required.

(Material) Safety Data Sheet

The (M)SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Allnex Australia Pty Ltd (ABN: 24 160 397 768)
Level 12, 680 George St
SYDNEY NSW 2000

Akzo Nobel Car Refinishes Australia Pty Ltd (ABN: 26 087 571 882)
269 Williamstown Road
PORT MELBOURNE VIC 3207

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 and manufacture/import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

DAOTAN® VTW 6460/35WA

Number Average Molecular Weight (Mn) is > 10,000 Da

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</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

Appearance at 20 °C and 101.3 kPa	Light yellow opaque emulsion
Melting Point/Glass Transition Temp	Not determined
Density	1,060 kg/m ³ at 20 °C
Water Solubility	0.5 g/L (measured at maximum light transmission using spectrophotometer)
Dissociation Constant	Not determined. The notified polymer contains potential cationic functionalities which are expected to be ionised in the environmental pH range (4–9).
Reactivity	Stable under normal environmental conditions
Degradation Products	None known

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>
Tonnes	10–25	10–25	10–25	10–25	10–25

Use

The notified polymer will be imported as 35% aqueous emulsion in 205 L steel drums or as finished coating product (80% of import volume) in 0.5, 1 and 4 L cans. The aqueous emulsion containing the notified polymer will be reformulated into low VOC (volatile organic compound) waterborne basecoat automotive refinish coatings. The final concentration of the notified polymer in the coatings will be up to 10%.

At the reformulation site the notified chemical will be transferred from 205 L steel drums into stainless steel blending tanks (10,000 L capacity), which are under local exhaust ventilation. The finished coating products containing the notified polymer are typically produced by high speed dispersion and mixing with other coating components, using enclosed and automated systems. The finished product is filled from the floor pots via hoppers into 0.5, 1 and 4 L cans by gravity feed.

At the mixing room of application site, paint workers will open cans of the coatings containing the notified polymer and mix with a reducer, if viscosity reduction (thinning) is required. The reduced coating will then be transferred to a reservoir (a pressure pot or a cup attached to a spray gun that is fed through aspiration/gravity) for final spray application.

Products containing the notified polymer will be applied by experienced workers using spray equipment in ventilated spray booths (including a downdraft, partial downdraft or a cross-draft type of booth). The coating will be applied to the vehicle surfaces either to a selected small spot, a body panel or the entire vehicle depending on the size of the area under repair. Unused coatings as well as water and other solvents used to clean the spray equipment will be stored in a hazardous waste container for disposal. Where potential exposure may occur, the use of personal protective equipment (PPE) such as coveralls, safety glasses, and gloves used by workers will minimise exposure. Air respirators will be worn by workers, where necessary.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. However, the notified polymer has low water solubility and a relatively high molecular weight. Inhalation exposure to water insoluble polymers with high molecular weight has been linked with irreversible lung damage due to lung overloading and impaired clearance of the polymers from the lung, particularly following repeated exposure (US EPA, 2013). Exposure to the notified polymer will be minimised through the use of engineering controls (e.g. spray booths) and workers will use PPE. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted for the notified polymer. The notified polymer contains functionalities which have the potential to become cationic under environmental conditions (pH 4–9). However, the cationic charge density is > 5,000 Da. Therefore, the notified polymer is not expected to be toxic to aquatic organisms based on the reported use pattern.

The notified polymer will not be manufactured; however, it will be reformulated in Australia as a component of automotive refinish coatings. Reformulation of the notified polymer occurs in a closed system and release to atmosphere is expected to be negligible. Solvent used for equipment washing, containing residues of the notified polymer, is expected to be recycled for reuse on site or disposed of via accredited waste disposal contractors. During formulation activities approximately 1% of the notified polymer is expected to remain as residue in the empty containers. A further 1% may be lost as result of spills and equipment leaks. Material lost due to spills and leaks will be collected placed in label containers and collected by waste disposal contractors for disposed of in accordance with local regulations.

The coatings containing the notified polymer will be used mainly in industrial processes and applications and will not be made available to the public. The coatings containing the notified polymer will be applied to the steel structure by professional spray paint operators in spray booths. These industrial locations are designed to collect spills and prevent release into the aquatic environment. Release generated from overspray (up to 50% of the import volume), washing spray equipment (up to 1% of the import volume) and spills from the spray application are expected to be collected and disposed of in accordance with local regulations.

No release of the notified polymer is expected once the coatings are applied and cured. Upon curing the polymer is incorporated into the polymer matrix where it will become inert. The fate of the coating cured on the substrate will be shared with the fate of the coated article, which ultimately is expected to be sent to landfill or to metal reclamation. In landfill, the notified polymer will be present as cured solids which will be neither bioavailable nor mobile. Furthermore, the notified polymer is not expected to bioaccumulate due to its high molecular weight. It is expected to eventually degrade in the environment to form oxides of carbon, nitrogen and water vapour. During metal recycling, the notified chemical is expected to be thermally decomposed in the metal furnace.

Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

Safe Work Australia (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/spray-painting-and-powder-coating>.

US EPA (2013) High Molecular Weight Polymers in the New Chemicals Program, <www.epa.gov/oppt/newchemicals/pubs/hmwtpoly.htm>.