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

FULL PUBLIC REPORT

Polymer in Lesonal Coatings

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 Water Resources.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at 334-336 Illawarra Road, Marrickville NSW 2204.

This Full Public Report is also 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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FULL PUBLIC REPORT**Polymer in Lesonal Coatings****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Akzo Nobel Car Refinishes Australia Pty Ltd (ABN 26 087 571 882)
269 Williamstown Road
Port Melbourne, VIC 3207

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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details and 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)

Lesonal Xpress Clear 261 (Product containing the notified polymer)
Lesonal 2K Clearcoat 230 (Product containing the notified polymer)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >1000 Daltons

Reactive Functional Groups

The notified polymer contains only low concern functional groups.

3. PLC CRITERIA JUSTIFICATION

Criterion	Criterion met
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 Hazardous 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: Transparent liquid (Product containing the notified polymer)

Melting Point/Glass Not determined

Transition Temp

Density 1010 to 1030 kg/m³ at 25°C

Water Solubility

pH	Solubility (mg/L)
Deionised water	118.73
2	121.24
7	78.97
9	78.848

OECD TG 120 was used to measure the solubility of the notified polymer in water at pH 2, pH 7 and pH 9 at a given temperature. A sample of the notified polymer was dissolved in the water at a given temperature under agitation up to saturation equilibrium (for 1 day). Afterwards, the amount of polymer dissolved in water at each different pH is determined by the total organic carbon content.

Dissociation Constant Not determined. The notified polymer contains a small amount of acid groups, which are expected to have a pKa of 3-5.

Reactivity The notified polymer in solvent does not react under normal conditions. Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis and strong acids.

Degradation Products None under normal conditions of use. During combustion may emit hazardous gases of carbon monoxide, carbon dioxide, smoke and oxides of nitrogen. The notified polymer contains hydrolysable functionality, however this is not expected to occur under standard environmental conditions.

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified polymer (100%) Over Next 5 Years

Year	1	2	3	4	5
Tonnes	30-100	30-100	30-100	30-100	30-100

Use

The notified polymer is a component (<70%) of automotive refinish paints. This paint will be applied to cars by spray painting in crash repair shops.

The majority of these spray applications will occur in a spray booth. The level of ventilation present in the spray booth will vary between workshops. In smaller automotive refinish repair shops spray applications may occur outside of a spray booth.

Mode of Introduction and Disposal

The notified polymer will not be manufactured, reformulated or repackaged within Australia.

The notified polymer will be imported by sea through the port of Melbourne as a component of the finished paint in 1 L to 5 L steel cans. The notified polymer will then be transported from the dockside to a Port Melbourne warehouse then to distribution outlets throughout Australia by road.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation

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

Occupational Health and Safety Risk Assessment

Transport and storage

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages.

Spray painting

Spray painters may come into contact with the notified polymer at a concentration of < 70% through dermal and ocular routes from direct contact with drips, spills and splashes during transfer of the paint to the spraying equipment, manual paint application, and equipment cleaning and maintenance.

Workers may also be exposed to the notified polymer (concentration of < 70%) by inhalation of paint aerosols containing the notified polymer during spray application. In the majority of car repair shops exposure is expected to be minimal as the spray paint is applied in a ventilated spray booth by workers using protective equipment. In car repair shops where spray booths are not used the level of exposure per application is expected to be greater, however, exposure will be minimised by spray application in a well ventilated area and the use of PPE in accordance with the MSDS. It is estimated that a spray painter will have the potential to be exposed to the notified polymer for a maximum of 3 h/week. It is estimated that approximately 500 spray-painters around Australia will be exposed to the notified polymer on a regular basis.

Cleaning of equipment

Once spraying is completed or the topcoat has been exhausted, the spray equipment is drained and cleaned using solvents and rags.

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.

No exposure to the notified polymer will occur during manufacturing and reformulation processes, as the notified polymer will be imported in the finished product. Although dermal, ocular and inhalation exposure may occur during spray application of paint containing the notified polymer, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer, and the controls in place in the workplace to minimise exposure.

Public Health Risk Assessment

The notified polymer is intended for use by professional spray painters in auto repair workshops only, and will not be sold to the public. Following application to automotive surfaces, the notified polymer will become trapped within a film and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered low.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation

No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is overchelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer. However, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

Environmental Risk Assessment

The notified polymer will be manufactured overseas, and therefore, there will be no environmental release in Australia at this stage. Release of the notified polymer from storage sites may result due to accidental spills. It is estimated that a maximum of 0.2% per annum of the notified polymer will be lost during spillage. Spills will be contained and soaked up with inert adsorbent material (sand, soil, vermiculite etc) and placed in sealable containers for appropriate disposal to landfill. Residue in the steel containers is expected to be approximately 0.2% of the total amount imported. This is expected to be disposed of to landfill.

The majority of the chemical will be released as overspray during automotive spray painting operations. It is estimated that approximately 30% of the ready for use material will be lost using High Volume Low Pressure (HVLP) spray guns with slightly higher losses from more outdated spray guns. This is expected to result in an overall loss rate of approximately 35%. The majority of spray painting is expected to be performed in spray booths where the overspray will be collected using filters and water scrubbers. The filters will be disposed of to landfill in accordance with local, State and Federal regulations. The polymer in the scrubber water is likely to cure as a component of the paint and be removed periodically and disposed of to landfill in accordance with local, State and Federal regulations. Any residual amount of polymer released to sewer is likely to adsorb to the sewage sludge in the Sewage Treatment Plant (STP) where it will be landfilled. In smaller smash repair workshops, which may not have spray booths, the overspray will be collected on newspaper sheet and disposed of as domestic waste to landfill.

Approximately 1% of the notified polymer is likely to be lost from cleaning of equipment. It is expected that this will be collected for disposal to landfill in accordance with local, State and Federal regulations.

In landfill the notified polymer will eventually undergo in-situ degradation by biotic and abiotic processes to landfill gases including methane, oxides of carbon and water vapour.

At the end of the useful life of the automotive panels on which the paint containing the notified polymer is sprayed, the panels will be disposed of to landfill or recycled. During recycling the polymer will be thermally decomposed to oxides of carbon and water vapour.

Minimal release to the aquatic environment from spray booth scrubber water is expected as most of the polymer will be removed as cured paint before release to sewer and then further removed in the sludge at the sewage treatment plant (STP) before sewage outfall. Therefore, the risk to the aquatic environment from the proposed use pattern is considered to be acceptable.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment

Under the conditions of the occupational settings described, the risk to workers is considered to be acceptable.

When used in the proposed manner the risk to the public is considered to be acceptable.

Environmental risk assessment

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

Recommendations

CONTROL MEASURES

Occupational Health and Safety

- No specific personal protective equipment is 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.
- Spray painting applications should be in accordance with the ASCC *National Guidance Material for Spray Painting* [NOHSC (1999b)].

- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)], 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 to landfill.

Emergency procedures

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

Regulatory Obligations

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 chemical 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 chemical has changed from a component (<70%) of automotive refinish paints, or is likely to change significantly;
 - the amount of chemical being introduced has increased from 100 tonnes, or is likely to increase, significantly;
 - if the chemical has begun to be manufactured in Australia;
 - additional information has become available to the person as to an adverse effect of the chemical 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.

No additional secondary notification conditions are stipulated.

Material Safety Data Sheet

The MSDS of products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.