

File No SAPLC/152

August 2013

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)****PUBLIC REPORT****Polymer in LS5612**

This Self Assessment has been compiled by the applicant and adopted by NICNAS 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), administered by the Department of Health and Ageing and the Department of Sustainability, Environment, Water, Population and Communities have screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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 Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This 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****TABLE OF CONTENTS**

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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
SAPLC/152	Akzo Nobel Pty Ltd	Polymer in LS5612	No	≤ 700 tonnes per annum	Industrial paint additive

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.

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 (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the 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 must be in operation.

Environment

- The following control measures should be implemented by the notifier and the applicator to minimise environmental exposure during manufacture, formulation and use of the notified polymer:
 - Bunding
 - Standard operating procedures

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- The following precautions should be taken by workers regarding storage of the notified polymer:
 - Store in a segregated and approved area.

- Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (oxidising substances, strong acids, strong bases).

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 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 an industrial paint additive, or is likely to change significantly;
 - the amount of polymer being introduced has increased, or is likely to increase, significantly;
 - the method of manufacture of the notified polymer in Australia has changed, or is likely to change, in a way that may result in an increased risk of an adverse effect of the notified polymer on occupational health and safety, public health, or the environment;
 - 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 a 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

APPLICANT

Akzo Nobel Pty Limited (ABN 59 000 119 424)
51 McIntyre Road
SUNSHINE NORTH VIC 3020

NOTIFICATION CATEGORY

Self Assessment: 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, Manufacture Volume, and Site of Manufacture/Reformulation.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

None

2. IDENTITY OF POLYMER

MARKETING NAME(S)

LS5612 (containing 50% of notified polymer)

Primax 2000 (containing 20% of notified polymer)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) >1000 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	A clear amber viscous liquid (the notified polymer at 50% in solvent).
Glass Transition Temp	58 °C
Density	1060 kg/m ³ at 25 °C (the notified polymer in a 50% solution in solvent)
Water Solubility	The notified polymer is expected to have very low water solubility based on the predominantly hydrophobic structure of the notified polymer.
Dissociation Constant	Not determined. The notified polymer contains residual acid functionalities which are expected to be ionised at environmental pH range (4 - 9). However, significant dissociation is not expected given that the notified polymer is expected to have limited water solubility and its release to aquatic environment is limited.
Particle Size	The polymer is not isolated from a solution
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>	≤ 700	≤ 700	≤ 700	≤ 700	≤ 700

USE AND MODE OF INTRODUCTION

The notified polymer will be manufactured in Australia and reformulated into paint products at ~ 20% final concentration. The finished paints will be applied by coil coating to metal sheet which will be used in the building industry.

6. HUMAN HEALTH RISK ASSESSMENT

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Dermal and ocular exposure may potentially occur during manufacture and reformulation of the notified polymer. However, exposure to significant amounts of the notified polymer will be limited by the mainly automated processes, the engineering controls and personal protective equipment worn by workers.

After coating application and once dried, the notified polymer will be cured into an inert matrix and will be unavailable to exposure.

PUBLIC EXPOSURE

The notified polymer will not be sold to the public. The public may come into contact with the finished and dried paint containing the notified polymer. However once the paint is cured and dried, the notified polymer will be bound in an inert matrix and as such will not be bioavailable for exposure.

6.2. Toxicological Hazard Characterisation

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

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

Based on the assumed low hazard of the notified polymer as well as the engineering controls and personal protective equipment used by workers to minimise exposure, the risk to workers from use of the notified polymer is not considered unreasonable.

PUBLIC HEALTH

The notified polymer will not be sold to the public. The paint containing the notified polymer will be used by industrial applicators. Once the polymer is applied and cured it will be contained in an inert matrix, and hence will not be bioavailable for exposure. The risk to the public from exposure to the notified polymer is therefore not considered to be unreasonable.

7. ENVIRONMENTAL RISK ASSESSMENT

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will be manufactured and reformulated at the same site in Australia. The amount of notified polymer released directly to the aquatic environment is not expected to be significant at the manufacturer site, reformulation site and at the applicator (coil coating) plant.

Indirect releases from these processes are expected to be from:

- Accidental spills (including transport and storage), which are expected to be contained or collected by bunding, absorbent material for disposal to landfill.
- Manufacturing and reformulation equipment residues, which are expected to be collected and

discarded to landfill.

- Empty drums containing residues (estimated to be 200kg notified polymer per annum), which are expected to be sent to licensed drum reconditioners, where the residual notified polymer may be either collected for disposal to landfill or thermally decomposed.

In the coil coating processes, the amount of notified polymer (in the paint) lost directly to the environment is not expected to be significant. Indirect losses are expected to be from:

- Accidental spills, which are expected to be cleaned up with absorbent material. The absorbed polymer is expected to be thermally decomposed or discarded to landfill. With existing good practices in place, spills would be minimal.
- Empty drums containing paint residues, which will be collected by licensed drum reconditioners. Paint residues remaining in the empty drums are estimated to contain approximately 200kg of the notified polymer per annum, which are expected to be thermally decomposed or discarded to landfill.
- Rejected painted metal sheet are expected to be subjected for metal reclamation. The notified polymer cured on the metal surface is expected to thermally decompose during metal recycling processes.

It is expected that approximately three tonnes per annum of notified polymer will be generated as waste from the above manufacturing, reformulation and coating activities.

ENVIRONMENTAL FATE

Up to three tonnes per annum of waste notified polymer might be generated during paint manufacture and use as a result of incidental spills, equipment cleaning and residues in containers. If spilt on land, the notified polymer is expected to bind to soil and become immobilised in the soil layer. If spilt to water, it is not expected to dissolve but rather disperse or settle to sediment. The majority of this waste will be sent to landfill for disposal. In landfill, the notified polymer in solid wastes is expected to be immobile.

Most of the notified polymer will be used for metal sheet coating and is expected to be cured on the substrates surface. The cured notified polymer is expected to share the fate of the coated substrate to be subjected for metal reclamation or disposed of to landfill. The notified polymer is not expected to be readily biodegradable, nor bioaccumulate due to its high molecular weight. In landfill, or by thermal decomposition, the notified polymer is expected to degrade to form water and oxides of carbon.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. Anionic polymers are generally of low toxicity to fish and daphnia, however they are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. However, this does not apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

7.3. Environmental Risk Assessment

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