

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in DISPERBYK 2015

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

For the purposes of subsection 78(1) of the Act, this 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**

December 2012

Table of Contents

SUMMARY	2
CONCLUSIONS AND REGULATORY OBLIGATIONS.....	2
ASSESSMENT DETAILS.....	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF POLYMER	4
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES.....	4
5. INTRODUCTION AND USE INFORMATION	4
6. HUMAN HEALTH RISK ASSESSMENT.....	5
7. ENVIRONMENTAL RISK ASSESSMENT	5

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/1087	Akzo Nobel Pty Ltd Valspar Paint (Australia) Pty Ltd Nuplex Industries (Aust) Pty Ltd	Polymer in DISPERBYK 2015	No	< 30 tonnes per annum	Component of coatings, pigment concentrates and inks

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.

- Spray applications should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999)] or relevant State and Territory Codes of Practice.
- 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 *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.

Environmental Recommendations

- No specific control measures are required to minimise release of the notified polymer to the environment.

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.

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 coatings, pigment concentrates and inks, 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 MSDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

ASSESSMENT DETAILS**1. APPLICANT AND NOTIFICATION DETAILS****Applicants**

Akzo Nobel Pty Ltd (ABN 59 000 119 424)
7 International Square, Tullamarine VIC 3043

Valspar Paint (Australia) Pty Ltd (ABN 40 000 035 914)
Level 4, 2 Burbank Place, Baulkham Hills, NSW 2153

Nuplex Industries (Aust) Pty Ltd (ABN 25 000 045 572)
49-61 Stephen Road, Botany, NSW 2019

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other names, CAS number, molecular formula, structural formulae, molecular weight, reactive functional groups, polymer constituents, and use details.

2. IDENTITY OF POLYMER**Marketing Name(s)**

Polymer in DISPERBYK 2015

Molecular Weight

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	Amber Liquid
Melting Point/Glass Transition Temp	Not Determined
Density	1120 kg/m ³ at 20 °C
Water Solubility	Not determined. The notified polymer is expected to be water soluble based on the presence of hydrophilic functional groups in the chemical structure and use in aqueous systems.
Dissociation Constant	Not determined. The notified polymer contains potential anionic functionalities with a typical pK _a ~ 4 which are expected to be ionised in the environmental pH range (4 - 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>
Tonnes	< 5	< 10	< 15	< 20	< 30

Use

The notified polymer will be imported at < 50% in DISPERBYK-2015. The notified polymer will then undergo reformulation into VOC free and solvent free wetting and dispersing additive for architectural and wood coatings and for resin free pigment concentrates, and into printing inks at < 40%.

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. 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. 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, which does not apply to the notified polymer. Furthermore, any toxicity to algae is likely to be reduced due to the presence of calcium ions in the aquatic environment, which will bind to the functional groups.

Releases of the notified polymer to the environment are expected during reformulation processes as spills, container residues or equipment washings. These releases are expected to be reused or collected for disposal to landfill. The notified polymer is proposed for use in coating and printing inks. When used as a coating the majority of the notified polymer will be trapped in the inert cured matrix and is not expected to be bioavailable in the environment. Some release of the notified polymer may occur from the cleaning of coating application equipment or recycling of printed articles.

For the purposes of risk assessment, it is assumed that 100% of the notified polymer will be used as paper printing ink for the worst case scenario.

It is assumed that 50% of the printed paper will end up in landfill and the rest will undergo paper recycling processes. During recycling processes, waste paper is repulped using a variety of chemical agents, which, amongst other things, enhance detachment of inks from the fibres. The notified polymer is a water dispersible anionic polymer and may not be fully recovered by on site waste water treatment at paper recycling facilities. A portion of the polymer may therefore be released to surface waters as a result of the de-inking process. However, the notified polymer is not expected to be a toxic hazard to aquatic organisms and it is not expected to be released at ecotoxicologically relevant concentrations.

Based on its high molecular weight, the notified polymer is not expected to cross biological membranes and is therefore not likely to bioaccumulate. The majority of the notified polymer will reach landfill as a result of releases from container residues, reformulation and coating processes, disposal of used paper or sludge waste from paper recycling. In landfill and water the notified polymer will be slowly degraded, eventually forming water and oxides of carbon and nitrogen. Therefore, based on its expected low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.