File No PLC/1153

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

# POLYMER OF LOW CONCERN PUBLIC REPORT

## Polymer in BYK-3550

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**


September 2013

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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/1153 | Reschem Technologies Pty Ltd<br>Akzo Nobel Pty Limited | Polymer in BYK-3550 | No | < 20 tonnes per annum | A component of industrial and 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, 2012) 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 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 should 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 a component of industrial and 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 products 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**
Reschem Technologies Pty Ltd (90 315 656 219)
Suite 1103, 4 Daydream Street
WARRIEWOOD NSW 2102

Akzo Nobel Pty Limited (59 000 119 424)
51 McIntyre Road
SUNSHINE NORTH VIC 3120

**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, spectral data, polymer constituents, residual monomers/impurities, use details and manufacture/import volume.

## 2. IDENTITY OF POLYMER

**Marketing Name(s)**
BYK-3550 (contains the notified polymer at < 70% concentration).

Number Average Molecular Weight (Mn) is > 1,000 Da.

## 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 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 | White liquid |
| Melting Point/Glass Transition Temp | < 20 °C |
| Density | 1010 kg/m$^3$ at 60 °C |
| Water Solubility | Expected to be insoluble due to its hydrophobic structure and high molecular weight |
| Reactivity | Stable under normal environmental conditions |
| Degradation Products | None under normal conditions of use |

***** For BYK-3550 containing the notified polymer in solvent solution at < 70% concentration.

## 5. INTRODUCTION AND USE INFORMATION

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

| *Year* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|
| Tonnes | < 20 | < 20 | < 20 | < 20 | < 20 |

**Use**
The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia as a component of a liquid product at a concentration of < 70%. Reformulation will occur at sites throughout Australia and the notified polymer will be present at a concentration of < 0.6% in finished products.

The notified polymer will be used as a component of industrial and automotive coatings applied by spray, brush or roller. The finished products will be used in industrial settings and by the public for DIY applications.

## 6. HUMAN HEALTH RISK ASSESSMENT

*Transport and Storage*
The notified polymer will be imported at a concentration of < 70%, contained in 25 or 200 kg sealed steel drums, and will be transported by road or rail. Transport and Warehouse workers may incur dermal and ocular contact with the notified polymer at a concentration of < 70% through accidental leakage and spillage of containers.

*Coating Formulation*
The notified polymer will be manually weighed and metered directly from the steel drums into a blending tank and blended with other components. During these processes workers may incur dermal and ocular exposure to the notified polymer at concentrations of < 70%.

The resulting product will be pumped into a mixing vessel and mixed with other components to produce the finished product containing the notified polymer at < 0.6%. The finished product will be filtered directly into product containers. A laboratory technician may incur dermal and ocular exposure to the notified polymer at < 0.6% concentration whilst removing samples during the mixing stage.

*Application of Coatings*
The finished product containing the notified polymer at < 0.6% will be stirred manually and poured into trays or spray guns before being applied by brush, roller or spray. Spray application is expected to be conducted in spray booths at industrial sites. Workers may incur dermal, ocular and inhalation exposure to the notified polymer at concentrations of < 0.6%.

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.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Approved Criteria for Classifying Hazardous Substances* [NOHSC: 1008 (2004)]. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

## 7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Polymers without significant ionic functionality are generally of low concern to the environment.

The notified polymer will not be manufactured in Australia; however, reformulation of the notified polymer into coatings will occur at sites throughout Australia. During transport, reformulation and industrial use, spills of the notified polymer (1.5% of the annual import volume) are expected to be collected and disposed of to landfill. The notified polymer that remains in the product containers (2% of annual import volume) is expected to be collected by licensed waste contractors. The product containers are expected to be disposed of to landfill; however, the residues in the containers are expected to be cured prior to the disposal. Equipment used to reformulate the notified polymer may be washed with water or solvent. The aqueous washings are expected to be treated so that the residual notified polymer (< 2% of import volume) is removed and disposed of to landfill, while the solvent washings will be collected and disposed of to landfill.

During industrial use, product containing the notified polymer is likely to be applied by spray techniques. Approximately 20-30% of the coating product is expected to be over sprayed during spraying operations. The over sprayed coating product is likely to entail landfill disposal after interception by spray booth filters, kraft paper or newspaper. Less than 5% of the annual import volume of the notified polymer will be incorporated into products available to the do it yourself (DIY) market. DIY users are expected to apply products by brushes and rollers, using similar practices to professional users. However, approximately 5% of the notified polymer used by DIY users (i.e. less than 1% of the total introduction volume) may be incorrectly disposed of to the sewer, drains or ground from waste and washing of application equipment. Assuming the releases occur nationwide and equally over the entire year, this is unlikely to lead to ecotoxicologically relevant concentrations of the notified polymer in the aquatic environment.

The fate of the coating containing the notified polymer will be the same as the coated article, which is ultimately expected to be disposed of to landfill. The remainder will be thermally decomposed to form oxides of carbon and silicon, and water vapour during metals reclamation.

In landfill, the notified polymer will be present in high molecular weight 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 and silicon, and water vapour. 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.