

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Lumiflon FE4400

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:

Street Address:	Level 7, 260 Elizabeth Street, SURRY HILLS NSW 2010, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX:	+ 61 2 8577 8888
Website:	www.nicnas.gov.au

**Director
NICNAS**

November 2011

Table of Contents

SUMMARY	2
CONCLUSIONS AND REGULATORY OBLIGATIONS.....	2
ASSESSMENT DETAILS.....	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF POLYMER	3
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES.....	4
5. INTRODUCTION AND USE INFORMATION	4
6. HUMAN HEALTH RISK ASSESSMENT.....	4
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/916	Architectural & Industrial Coatings	Polymer in Lumiflon FE4400	No	≤ 7 tonnes per annum	Polymer component in paint

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment

Based on the assumed low hazard, the assessed use pattern and the appropriate controls in place to protect workers against inhalation exposure, 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

- If aerosols are formed during the use of the notified polymer, engineering controls and respiratory protection should be used to prevent inhalation exposure.
- A copy of the MSDS should be easily accessible to employees.
- Spray application should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999)].
- 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 to landfill.

Emergency Procedures

- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
- 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 paints or is likely to change significantly;
 - the amount of notified polymer being introduced has increased per annum, 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 notified polymer and/or products containing the notified polymer was/were 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

Architectural & Industrial Coatings (ABN 48 183 706 679)
7 Lackey Road
Moss Vale NSW 2577

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.

IDENTITY OF POLYMER

Marketing Name(s)

Lumiflon FE4400 (containing the notified polymer at up to 48.5%)

Molecular Weight

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

Reactive Functional Groups

The notified polymer contains only low concern functional groups.

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

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	White granular powder
Melting Point/Glass Transition Temp	The notified polymer did not melt up to 400°C (OECD TG 102)
Density	1403 kg/m ³ at 20 °C
Water Solubility/Extractability	Less than the limit of quantification (<5 mg/g) at 20 °C (Based on OECD guideline 120 in combination with 105).
Particle Size	<10 µm = 1.61 % <100 µm = 28.80 % Mass median diameter = 142.0 µm
Reactivity	Stable under normal environmental conditions.
Degradation Products	None under normal conditions of use. The polymer may decompose to HCl, HF, CO and CO ₂ if heated to >200°C.

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>	2-3	3-4	4-5	5-6	6-7

Use

The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia at a concentration of 48.5% in a liquid emulsion. The notified polymer will be reformulated in Australia into paint products at concentrations up to 35%. The notified polymer contained in paint will be applied by spray to cellulose fibre cement (used for external facades), concrete and steel, in industrial settings only.

6. HUMAN HEALTH RISK ASSESSMENT

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. An acute oral toxicity study on a liquid formulation containing the notified polymer indicates that it is of low acute oral toxicity (LD₅₀>2000 mg/kg bw). However, the notified polymer contains a monomer

unit that is structurally related to polymers that are known to be toxic by inhalation. Therefore the inhalation risk of the notified polymer cannot be ruled out.

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
1. Rat, acute oral	LD ₅₀ > 2000 mg/kg bw	no	OECD TG 423

Occupational Health and Safety Risk Assessment

The imported product and end use paint containing 48.5% and up to 35% notified polymer, respectively will only be available for industrial purposes and the general public will not have access to the notified polymer.

Exposure to transportation workers will only occur in the case of an accidental spill.

Reformulation workers may be exposed to the imported product containing the notified polymer (48.5%) by dermal, inhalation and ocular routes during reformulation into the end-use paint. Exposure, in particular inhalation exposure to aerosols, is expected to be minimised by the automated and enclosed nature of the transfer and mixing processes and the local ventilation system used. Dermal and ocular exposure due to splashes is also possible. Although exposure to the notified polymer could occur during these processes, the risk to workers is not considered to be unacceptable due to the workplace controls in place and assumed low hazard of the notified polymer.

The end use paint will mainly be applied using enclosed automatic spray coating machines fitted with filtered exhaust systems that require little worker involvement. Thus worker exposure during these processes is expected to be negligible. The paint will also be applied in spray booths with workers wearing respiratory protection to minimise inhalation exposure. Occasionally, the paints will be applied using brush or roller at the site of the façade. Worker exposure during such processes is expected to be lowered by the use of personal protective equipment, including respiratory protection when necessary.

In summary, the risk to workers presented by the notified polymer is not expected to be unreasonable, assuming that measures are taken to minimise inhalation exposure to the notified polymer, particularly during spray application.

Public Health and Safety Risk Assessment

The public may come into contact with dried coatings containing the notified polymer, however, it will not be available for exposure. Therefore, the risk posed by public exposure to the notified polymer is not considered unreasonable.

7. ENVIRONMENTAL RISK ASSESSMENT

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

Reformulation wastes, containing the notified polymer, and container residues are expected to be collected and re-used. Accidental spills (estimated to be up to 1% of the import volume) are expected to be contained, collected and disposed of to landfill.

The coating will be applied to building elements at the end-users site using the automatic spray coating machines and any excess paint is collected and returned to the paint reservoir. The equipment will be used intermittently, and may be shut down for maintenance from time to time. The equipment will be cleaned with water and possibly a suitable solvent which is collected and sent off site to a liquid waste treatment facility. It is estimated that 2% of the import volume may be lost from cleaning of equipment. Overspray, captured during use of spray booth to apply the coating, will typically entail

landfill disposal, after interception by spray booth filters. No release of paint residues to sewer is expected from reformulation and end-use activities in the controlled industrial settings.

Once cured, the coatings containing the notified polymer will form an inert polymer matrix, and the incorporated notified polymer will not be bioavailable. Discarded coated articles of building elements are expected to be sent to landfill at the end of their useful lives. In landfill, the notified polymer contained in solid waste or on coated surfaces is expected to be immobile due to its incorporation into an inert matrix of cured coatings and will eventually degrade via abiotic or biotic processes. Thermal decomposition of the notified polymer may result in the formation of toxic decomposition products such as HF, HCl and COF₂. However, incineration is not expected to be a predominant disposal pathway of coated building elements. Bioaccumulation in aquatic organisms is not likely based on its high molecular weight and, furthermore, no release of the notified polymer to aquatic environment is expected. Based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.