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

**PUBLIC REPORT**

**Polymer in LITE 3117**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (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 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.

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**Director  
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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 CHEMICAL	INTRODUCTION VOLUME	USE
LTD/1897	Chemiplas Australia Pty Ltd	Polymer in LITE 3117	ND*	≤ 40 tonnes per annum	Component of coatings

\*ND = not determined

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### Hazard classification

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS), as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

### Human health risk assessment

Provided that the recommended controls are being adhered to, under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

### Environmental risk assessment

On the basis of 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

- A person conducting a business or undertaking at a workplace should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer [as introduced and as diluted for use]:
  - Coveralls
  - Eye protection
  - Gloves

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 Code of Practice for *Spray Painting and Powder Coating* (SWA, 2015) or relevant State or Territory Code of Practice.
- 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 of 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.

## Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

## Emergency procedures

- Spills 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 chemical, 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 polymer has a number-average molecular weight of less than 1000;or
- (2) Under Section 64(2) of the Act; if
  - the function or use of the polymer has changed from component of coatings or is likely to change significantly;
  - the amount of polymer being introduced has increased, or is likely to increase, significantly;
  - the polymer has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the 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 the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

## **ASSESSMENT DETAILS**

### **1. APPLICANT AND NOTIFICATION DETAILS**

**APPLICANT(S)**

Chemiplas Australia Pty Ltd (ABN: 29 003 056 808)  
Level 1, 128 Jolimont Road  
EAST MELBOURNE VIC 3002

**NOTIFICATION CATEGORY**

Limited: Synthetic polymer with  $M_n \geq 1,000$  Da.

**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, analytical data, degree of purity, polymer constituents, residual monomers, impurities, additives/adjuvants, use details, manufacture/import volume, and identity of manufacturer/recipients.

**VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)**

Variation to the schedule of data requirements is claimed for all physico-chemical endpoints.

**PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)**

None

**NOTIFICATION IN OTHER COUNTRIES**

Canada (2015)

United States of America (2015)

### **2. IDENTITY OF CHEMICAL**

**MARKETING NAME(S)**

LITE 3117 (product containing the notified polymer at < 80%)

**CAS NUMBER**

Not assigned.

**MOLECULAR WEIGHT**

> 1,000 Da

**ANALYTICAL DATA**

Reference IR, GPC spectra were provided.

### **3. COMPOSITION**

**DEGREE OF PURITY**

> 70%

### **4. PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE AT 20 °C AND 101.3 kPa: yellow-brown liquid

<b>Property</b>	<b>Value</b>	<b>Data Source/Justification</b>
Melting Point/Freezing Point	Not determined	Notified chemical is a liquid.
Boiling Point	Not determined	Expected to undergo decomposition prior to boiling based on tests performed on an analogue.
Density	944.4 kg/m <sup>3</sup> at 22.5 °C*	Analogue data.
Vapour Pressure	< 1.3 × 10 <sup>-9</sup> kPa	Estimated based on the NAMW > 1,000 Da (US EPA, 2013)
Water Solubility	10 g/L at 20 °C	Analogue data. The notified polymer is expected to be water dispersible based on

Hydrolysis as a Function of pH	Not determined	the presence of hydrophilic moieties in the chemical structure. The notified polymer has a structure characteristic of a surfactant.
Partition Coefficient (n-octanol/water)	Not determined	The notified polymer does not contain hydrolysable functionality The notified polymer has a structure characteristic of a surfactant. Therefore, it may partition to the n-octanol/water phase boundary.
Adsorption/Desorption	Not determined	The notified polymer is expected to be immobile in soil based on its high molecular weight and presence of ionic functionality which will adsorb to soil and sediment.
Dissociation Constant	Not determined	The notified polymer contains potentially cationic functionalities which are expected to be ionised in the environmental pH range (4 - 9).
Flash Point	Not determined	Imported in flammable solvent.
Autoignition Temperature	Not determined	Imported in flammable solvent.
Explosive Properties	Not determined	Not expected to be explosive based on structure.
Oxidising Properties	Not determined	Not expected to be oxidising based on structure.

\* For the product LITE 3100 containing the analogue polymer at  $\leq 80\%$

#### DISCUSSION OF PROPERTIES

For full details of tests on physical and chemical properties of the analogue polymer (at a concentration of  $\leq 80\%$ ), refer to Appendix A.

#### Reactivity

The notified polymer is expected to be stable under normal conditions of use.

#### Physical hazard classification

Based on the submitted physico-chemical data depicted in the above table, the notified polymer is not recommended for hazard classification according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia.

## 5. INTRODUCTION AND USE INFORMATION

#### MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

The notified polymer will be imported into Australia as a resin solution at  $< 80\%$  concentration.

#### MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year	1	2	3	4	5
Tonnes	5 – 15	5 – 15	20 – 40	20 – 40	20 – 40

#### PORT OF ENTRY

Brisbane, Melbourne, Perth and Sydney

#### TRANSPORTATION AND PACKAGING

The resin solution (containing the notified polymer at  $< 80\%$  concentration) will be imported in 250 L drums with phenolic liner. The finished products containing the notified polymer at a concentration of  $< 25\%$  will be packaged in 1 L to 20 L containers for industrial use only.

#### USE

The notified polymer will be used as a component of multi-part epoxy coatings at  $< 25\%$  concentration. The finished products are for industrial use only.

## OPERATION DESCRIPTION

*Reformulation*

At the reformulation site, the product containing the notified polymer (at < 80% concentration) will typically be pumped (using sealed automated and metered processes) into a closed mixing vessel, to which other ingredients will be added. The reformulated product (containing the notified polymer at < 25% concentration) will be pumped into containers using sealed, automated and metered processes. Quality control personnel may sample the final reformulated product containing the notified polymer.

*End use*

The notified polymer is part of an epoxy-resin mixture (containing the notified polymer at < 25% concentration) and will be used in industrial settings to coat steel products such as pipelines, railcars and cargo containers.

**6. HUMAN HEALTH IMPLICATIONS****6.1. Exposure Assessment****6.1.1. Occupational Exposure**

## CATEGORY OF WORKERS

<i>Category of Worker</i>	<i>Exposure Duration (hours/day)</i>	<i>Exposure Frequency (days/year)</i>
Transport and storage	6	12
Formulator	8	12
Quality Control	6	12
Packaging	6	12
End users	4	12

## EXPOSURE DETAILS

Transport and storage workers may come into contact with the notified polymer at < 80% concentration only in the event of accidental rupture of containers.

*Reformulation sites*

At reformulation sites, dermal or ocular exposure to the notified polymer at < 80% concentration may occur during transfer processes, when taking samples during cleaning and maintenance of equipment and on occasions where manual mixing/dispensing is required. Exposure will be mitigated by the use of engineering controls and personal protective equipment (PPE), including safety glasses, laminate gloves, and coveralls.

*End use*

At end-use sites, dermal, ocular and inhalation exposure to coatings (containing the notified polymer at < 25% concentration) may occur during transfer, application and cleaning processes. The potential for exposure should be minimised through the use of PPE (goggles, laminate gloves, coveralls) by workers and use of appropriate respiratory protection during spray application. Once cured, the notified polymer is not expected to be bioavailable and further dermal contact should not lead to exposure.

**6.1.2. Public Exposure**

Products containing the notified polymer at < 25% concentration will not be available to the general public. The public may come into contact with coated articles containing the notified polymer. However, once the notified polymer is cured, it will be bound within the resin matrix and will not be bioavailable. Therefore, when used in the proposed manner, the risk to public health is not considered to be unreasonable.

**6.2. Human Health Effects Assessment**

No toxicity data were submitted for the notified polymer.

The notified polymer is not expected to be absorbed across biological membranes to a significant extent based on its high molecular weight ( $M_n > 1000$  Da). However, the polymer contains a relatively high percentage of low molecular weight species (< 1000 Da) that may be absorbed.

The notified polymer contains a residual monomer that is considered to cause skin irritation. The potential for irritation is likely to be limited by the high molecular weight of the notified polymer. However, irritation effects following exposure to the notified polymer cannot be completely ruled out, particularly due to the presence of low molecular weight species.

#### **Health hazard classification**

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

### **6.3. Human Health Risk Characterisation**

#### **6.3.1. Occupational Health and Safety**

No toxicological data were provided for the notified polymer. Irritant effects following exposure to the notified polymer, as imported and in end use products (at < 25% concentration), cannot be excluded. Therefore steps should be taken to avoid exposure to the notified polymer.

Limited exposure to the notified polymer (at < 25% concentration) may occur during manufacturing and coating applications, quality control, and cleaning processes involving the notified polymer. Exposure is likely to be reduced through the use of automated and enclosed systems and the PPE expected to be worn when handling the notified polymer during these processes.

Given the expected low hazardous nature of the notified polymer, the proposed use of PPE, and the engineering controls in place, the risk to the health of workers from use of the notified polymer is not considered to be unreasonable.

#### **6.3.2. Public Health**

The notified polymer is intended for industrial use only and will not be available to the public. Public exposure to the notified polymer may occur through contact with coated steel items, where it will be bound within a polymer matrix and not be bioavailable. Therefore the risk to the public is not considered to be unreasonable.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **7.1. Environmental Exposure & Fate Assessment**

#### **7.1.1. Environmental Exposure**

##### **RELEASE OF CHEMICAL AT SITE**

The notified polymer will not be manufactured in Australia. It will be blended with other ingredients to produce the resin component of multi-part epoxy coatings. Environmental release during importation, transport, repacking and distribution may occur as a result of accidental spills. In the event of a spill, the notified polymer is expected to be contained and collected with an inert absorbent material and disposed of in accordance with local regulations.

The formulation of the notified chemical into epoxy coatings will take place in industrial facilities that are equipped with closed blending vessels. The facilities will be engineered to prevent any spilled material from entering into sewers, local wastewater treatment systems, ground water or natural waterways. All spilled material within the facility is expected to be contained, collected with absorbent materials, and stored until disposed in accordance with local regulations.

##### **RELEASE OF CHEMICAL FROM USE**

During use, the coatings will be applied via rolling, spraying and brushing. Some applications may take place outdoors, therefore, the notified polymer may enter the environment through drips or overspray. The notified polymer is not expected to be volatile so it is anticipated that any releases will be to soil or water. The coating may be released to the environment in small quantities during use (< 1%); however, because the amount of the notified polymer present in the coating is between 10-20%, a significant amount is not expected to be released to the environment.



**RELEASE OF CHEMICAL FROM DISPOSAL**

Any waste notified polymer collected as a result of accidental release or venting to control technology is expected to be disposed of via licensed waste disposal facilities. Empty drums are expected to be sent to an off-site drum cleaning/reclaiming operation. The notified polymer is expected to remain associated with the substrate to which it has been applied.

**7.1.2. Environmental Fate**

No environmental fate data were submitted. The captured overspray and the majority of articles to which the notified polymer will be applied will be disposed of to landfill. The majority of the notified polymer is expected to be cured within an inert polymer matrix adhering to articles following its use in coating applications. In its cured form it is not expected to be mobile, bioavailable or biodegradable. Ultimately, the notified polymer is expected to eventually degrade via biotic and abiotic processes in landfill, or by thermal decomposition during metal reclamation processes, to form water and oxides of carbon and nitrogen.

Some fraction of the notified polymer may be released to the environment as a result of outdoor coatings (< 1% of the import volume). In soil, the notified polymer is likely to be immobile as it sorbs strongly to negatively charged sites on soil and sediment. The notified polymer is not expected to bioaccumulate based on its high molecular weight.

**7.1.3. Predicted Environmental Concentration (PEC)**

The predicted environmental concentration (PEC) has not been calculated as release of the notified polymer to the aquatic environment will be limited based on its reported use pattern.

**7.2. Environmental Effects Assessment**

No ecotoxicity data were submitted. However, it should be noted that some functional groups of the notified polymer are potentially cationic which are considered a concern to aquatic organisms. However, this effect is not significant given minimal release of the notified polymer to the aquatic environment is expected from the proposed use pattern.

**7.2.1. Predicted No-Effect Concentration**

The Predicted No-Effect Concentration (PNEC) has not been calculated as no significant release of the notified polymer to the aquatic environment is expected from the proposed use pattern.

**7.3. Environmental Risk Assessment**

The risk quotient ( $Q = \text{PEC}/\text{PNEC}$ ) for the notified polymer has not been calculated as release to the aquatic environment in ecotoxicologically significant quantities is not expected based on its reported use pattern as a component of industrial coating. The majority of the notified polymer will be disposed of to landfill as a cured polymer matrix in coated articles. The notified polymer bound in coated articles is unlikely to be bioavailable or mobile in this form. On the basis of the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

**APPENDIX A: PHYSICAL AND CHEMICAL PROPERTIES****Boiling Point**

Decomposition began at 136 °C

Method	OECD TG 103 Boiling Point.
Remarks	Siwoloboff method.
	Test performed on product containing the analogue chemical at a concentration of $\leq 80\%$ .
Test Facility	ISI (2012)

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