

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

POLYMER OF LOW CONCERN PUBLIC REPORT

CRYLCOAT® 4693-2

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

This Public Report is 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**

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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/1316	Allnex Australia Pty Ltd	CRYLCOAT® 4693-2	No	≤ 100 tonnes per annum	Component of industrial 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.

- In the interest of occupational health and safety, the following precautions should be observed for use of the notified polymer as introduced in powder form:
 - The level of atmospheric nuisance dust should be maintained as low as possible. The Safe Work Australia exposure standard for atmospheric dust is 10 mg/m³.
- 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 (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, 2015) 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 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 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 industrial 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 the 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

Applicants

Allnex Australia Pty Ltd (ABN: 24 160 397 768)
Level 12, 680 George Street
SYDNEY NSW 2000

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, purity, polymer constituents, residual monomers/impurities, site of manufacture and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

CRYLCOAT® 4693-2

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	Pale coloured flakes
Melting Point/Glass Transition Temp	58 °C
Density	1,200 kg/m ³ at 20 °C
Water Solubility	Not determined. Expected to be low based on the predominantly hydrophobic structure of the notified polymer.
Dissociation Constant	Not determined. The notified polymer contains potential anionic functionalities which are expected to be ionised in the environmental pH range (4–9). However, this is not considered to be a concern due to its limited water solubility.
Particle Size	Not determined. During reformulation the particle size will be between 2 and 100 µm.
Reactivity	Stable under normal use condition
Degradation Products	Not known

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	60–100	60–100	60–100	60–100	60–100

Use

The notified polymer will not be manufactured in Australia. It will be imported and reformulated into powder coating products (at up to 40% concentration).

At the reformulation site the notified chemical will be added manually or robotically transferred into a sealed hopper with other ingredients. The powder coatings containing the notified polymer are typically produced by blending and extruding the resins, curing agents, pigments and additives, using enclosed and automated systems. Most commercial powders containing the notified polymer have a particle size within 2–100 µm, with the majority of the distribution between 30–40 µm. The powder is stored in automatically sealed plastic bags for use as required.

At the powder coating facility, bags are opened and either emptied into a hopper with an automatic feeder to the production line, or the spray gun is connected directly from the bag. The powder coating is applied by automated or manual systems, with the substrate transported through a spray zone containing a number of spray guns. The application of the powder by electrostatic spray will occur within a totally enclosed unit.

Some items will require manual powder coat application. Manual spraying is undertaken in separate spray booths. Over 97% of the powder coating is applied automatically and the rest is applied manually. Exposure to the notified polymer may occur when manually spraying coated articles to achieve a complete coating. Both manual and automated booths have cyclone extraction fans to pull all residual airborne powder into capture filters. The equipment used is self-cleaning, minimising worker exposure.

After the coating process is complete. The coated substrate is transferred along a conveyor into an enclosed oven for heat curing.

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.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. These are present in the notified polymer as introduced above the cut off concentrations for classification.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted for the notified polymer. Anionic polymers 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. This is unlikely to apply to the notified polymer.

The notified polymer will not be manufactured; however, will be reformulated in Australia as a component of powder coating formulations for industrial use.

During formulation activities approximately 0.5% of the notified polymer is expected to remain as residue in the empty bags. A further 0.1% may be lost as result of spills and equipment leaks. Material lost due to spills and leaks will be collected placed in label containers and collected by waste disposal contractors for disposal to landfill. Residues left in bags will be disposed of to landfill.

In industrial applications, electrostatic spraying systems are closed systems designed to minimise the amount of overspray. The application of the powder coatings to substrates is expected to be carried out in spray booths with exhaust extraction systems designed to trap excess dust and coating powder in collector systems. All excess powder is expected to be recovered and re-used. Equipment cleaning will be done with dust-tight vacuum cleaners and this material will be collected for re-use or disposal to landfill.

No release of the notified polymer is expected once the coatings are applied and cured. Upon curing the polymer is incorporated into the polymer matrix where it will become inert. The fate of the coating cured on the substrate will be shared with the fate of the coated article, which ultimately is expected to be sent to landfill or to metal reclamation. In landfill, the notified polymer will be present as 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 water vapour. During metal recycling, the notified chemical is expected to be thermally decomposed in the metal furnace.

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.

ASSESSMENT DETAILS

Safe Work Australia (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/spray-painting-and-powder-coating>.