

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN FULL PUBLIC REPORT

Crylcoat 8079

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 Full Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Full 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**

May 2011

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1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Cytec Australia Holdings Pty Ltd (ABN 45 081 148 629)
Suite 1, Level 1 Norwest Quay,
21 Solent Circuit, Norwest Business Park,
Baulkham Hills NSW 2153

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, use details and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

Crylcoat 8079

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

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

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	Colourless granules								
Melting Point/Glass Transition Temp	80-85°C (DSC)								
Density	1,200 kg/m ³ at 25°C								
Water Solubility	0.04 g/L at 25°C. Determined by measuring the mass of residues in the filtrate of an aqueous dispersion prepared as 25 g/L.								
Dissociation Constant	The pKa of notified polymer is estimated from the monomer to be 4.4-5.4								
Particle Size	<table border="1"> <thead> <tr> <th>Particle Size</th><th>%</th></tr> </thead> <tbody> <tr> <td>5 mm – 10 mm</td><td>9.6%</td></tr> <tr> <td>1 mm – 5 mm</td><td>90.1%</td></tr> <tr> <td>150 µm – 1 mm</td><td>0.3%</td></tr> </tbody> </table>	Particle Size	%	5 mm – 10 mm	9.6%	1 mm – 5 mm	90.1%	150 µm – 1 mm	0.3%
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5 mm – 10 mm	9.6%								
1 mm – 5 mm	90.1%								
150 µm – 1 mm	0.3%								
Reactivity	Stable under normal environmental conditions. The notified chemical contains hydrolysable functionality. However, the								

notified polymer is expected to be hydrolytically stable in the environmental pH range (4-9) at ambient temperature.

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	50-100	50-100	50-100	50-100	50-100

Use

The notified polymer will not be manufactured in Australia. It will be imported in neat form as solid granules in 25 kg plastic bags. The notified polymer will be reformulated in Australia into powder coatings at up to 10% of notified polymer.

The notified polymer will be used as a component in powder coating formulations.

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.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. 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, which does not apply to the notified polymer. In addition, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

The majority of the notified polymer will be irreversibly incorporated within the inert polymer matrix of cured coatings and will be disposed of to landfill, or thermally decomposed during metals reclamation, at the end of the useful life of coated articles. Once incorporated into the inert polymer matrix it is not expected to be mobile in the environment or bioavailable. Release of up to 0.6% of the notified polymer may occur during reformulation from import container residues (0.5%) and spills and equipment leaks (0.1%), these are expected to be collected and disposed of to landfill. In industrial application of powder coatings, it is expected that all excess powder will be captured in the exhaust extraction system to be recovered and reused. Up to 5% of the notified polymer may be collected during application of coatings and equipment cleaning and will be either recovered for reuse or disposed of to landfill. A further 0.1% is expected to remain as residues in the end-use containers and be disposed of to landfill. The notified polymer is not expected to be readily biodegradable but is not expected to bioaccumulate due to its high molecular weight. The notified polymer is expected to eventually degrade by biotic and abiotic processes in landfill, or by thermal decomposition during metals reclamation, to form water and oxides of carbon.

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.

8. RECOMMENDATIONS

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 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 in powder coating formulations 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 chemical 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 was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.