

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### Crelan EF 403

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**

January 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/1106	Bayer MaterialScience	Crelan EF 403	No	≤ 30 tonnes per annum	Component of powder 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**

- A person conducting a business or undertaking at a workplace should implement the following safe work practices to minimise occupational exposure during formulation and application of powder coatings containing the notified polymer:
  - Avoid the formation of airborne dusts
- 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 where dust may be generated:
  - Safety glasses
  - Respiratory protection

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 when the reformulated powder coating products containing the notified polymer are ground into 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/m<sup>3</sup>.
- A copy of the MSDS 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* (SWA, 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.

**Disposal**

- The notified polymer should be disposed 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 powder 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 MSDS of the notified polymer was 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**

**Applicant**

Bayer MaterialScience (ABN 18 086 237 765)  
17-19 Wangara Road  
CHELTENHAM VIC 3192

**Exempt Information (Section 75 of the Act)**

Data items and details claimed exempt from publication: chemical name, CAS number, molecular and structural formulae, molecular weight, reactive functional groups, polymer constituents, residual monomers/impurities, and import volume.

**2. IDENTITY OF POLYMER****Marketing Name(s)**

Crelan EF 403

**Molecular Weight**

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

**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	Solid waxy flakes
Melting Range	70 -78 °C
Density	600 kg/m <sup>3</sup>
Water Solubility	Not determined; expected to be very low based on the predominantly hydrophobic structure and high molecular weight
Particle Size	Flakes (6-10 mm diameter)
Reactivity	Stable under normal environmental conditions
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	< 30	< 30	< 30	< 30	< 30

**Use**

The notified polymer will not be manufactured in Australia.

The notified polymer will be imported into Australia as a neat material (flakes of 6-10 mm).

Products containing the notified polymer will be reformulated in Australia.

The notified polymer will be used as a crosslinking agent for powder coatings at a concentration up to 10%. The powder coating will be sprayed onto earthed objects using an electrostatic process.

## 6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomer that is classified as hazardous. The residual monomer is not present in the notified polymer above the cut off concentration for classification.

The reformulated powder coating products containing the notified polymer at < 10% will be ground into a fine powder. The particles in the powder coating are typically within the inhalable range with a small proportion (< 5%) in the respirable range. This will vary depending on the processes used to manufacture the powder coatings and may lead to temporary physical effects in the lungs at higher exposure levels. Normal lung clearance mechanisms are expected to tolerate low exposures to the notified polymer.

All workers handling the powder coating products during formulation and application are expected to wear personal protective equipment (PPE) including safety glasses and respiratory protection. In addition, the application of the coatings by electrostatic spray will be conducted in fully automated enclosed systems or, on occasions, by manual spraying in dedicated spray booths. Hence, provided these control measures are in place inhalation exposure to the notified polymer is expected to be limited, reducing the risk of any lung effects.

## 7. ENVIRONMENTAL RISK ASSESSMENT

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

The majority of the notified polymer will be 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, the notified polymer is not expected to be mobile in the environment or bioavailable. Release of up to 0.6% of the total annual import volume of notified polymer may occur during reformulation from residues in import containers (0.5%), spills and equipment leaks (0.1%). These releases 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 is estimated to be lost during application of coatings and equipment cleaning, which is expected to 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, oxides of carbon and nitrogen.

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.