

File No PLC/844

September 2009

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

**FULL PUBLIC REPORT**

**Dispersogen PCE**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (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 Ageing, 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, Water, Heritage and the Arts.

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 334-336 Illawarra Road, Marrickville NSW 2204.

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:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
NICNAS**

## **TABLE OF CONTENTS**

FULL PUBLIC REPORT .....	3
1. APPLICANT AND NOTIFICATION DETAILS .....	3
2. IDENTITY OF CHEMICAL .....	3
3. PLC CRITERIA JUSTIFICATION .....	3
4. PHYSICAL AND CHEMICAL PROPERTIES.....	3
5. INTRODUCTION AND USE INFORMATION.....	4
6. HUMAN HEALTH IMPLICATIONS .....	4
7. ENVIRONMENTAL IMPLICATIONS .....	5
8. CONCLUSIONS AND RECOMMENDATIONS .....	5

**FULL PUBLIC REPORT****Dispersogen PCE****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Clariant (Australia) Pty Ltd (ABN 30 069 435 552)

Brandon Office Park, Building 5, L2, 530-540 Springvale Rd Glen Waverley VIC 3150

## NOTIFICATION CATEGORY

Polymer of Low Concern

## 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, Polymer Constituents, Residual Monomers/Impurities, Use Details and Import Volume.

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

No variation to the schedule of data requirements is claimed.

## PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

No

## NOTIFICATION IN OTHER COUNTRIES

China (2008)

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Dispersogen PCE

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) &gt;1000

## REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

**3. PLC CRITERIA JUSTIFICATION***Criterion*

Molecular Weight Requirements

Functional Group Equivalent Weight (FGEW) Requirements

Low Charge Density

Approved Elements Only

Stable Under Normal Conditions of Use

Not Water Absorbing

Not a Hazard Substance or Dangerous Good

*Criterion met*

Yes

Yes

Yes

Yes

Yes

Yes

Yes

**4. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance at 20°C and 101.3 kPa: Viscous Liquid

Melting Point/Glass Transition Temp -3°C

Density	1131 kg/m <sup>3</sup> at 20°C
Water Solubility	> 1000 g/L at 20°C
	The flask method (OECD TG 105) was used. A clear viscous solution without particles or phase separation was produced using 0.1 g of notified polymer and 0.1 g of water.
Dissociation Constant	Not determined. The notified polymer contains carboxylic acid functionality and may be ionised under normal environmental conditions.
Reactivity	Stable under normal environmental conditions. Thermal degradation above 300°C
Degradation Products	None under normal conditions of use. No degradation observed up to 300°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>
Tonnes	< 10	< 10	< 10	< 10	< 10

#### Use

Dispersing agent for pigments used in paint manufacture.

#### Mode of Introduction and Disposal

The notified polymer will be imported neat (ca. 100%) or as a dispersing agent component (< 10%) of formulated pigment dispersions. These will be used by paint manufacturers to produce a range of paint formulations containing the notified polymer at < 1%.

## 6. HUMAN HEALTH IMPLICATIONS

### Hazard Characterisation

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is supported by toxicological endpoints observed in testing conducted on an analogue polymer.

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
1. Rat, acute oral	LD50 > 2000 mg/kg bw	yes	OECD TG 423
2. Rabbit, skin irritation	non-irritating	no	OECD TG 404
3. Rabbit, eye irritation	non-irritating	yes	OECD TG 405

Effects observed in the acute oral study were relatively minor and include ruffed fur, slight sedation and hunched posture. In the eye irritation study only mild, early-onset and transient conjunctivae effects were observed.

All results were indicative of low hazard.

### Occupational Health and Safety Risk Assessment

Dermal and ocular exposure may potentially occur during certain processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers.

Although exposure to the notified polymer could occur during mixing/blending, addition of polymer to paint batches, collection of samples and cleaning of dispenser tubes, the risk to workers is not considered to be unacceptable due to the assumed low hazard of the notified polymer.

### Public Health Risk Assessment

Since the notified polymer will be in products sold to the general public, there is the potential for dermal, and to a lesser extent oral and ocular exposure. Recommendations for safe handling of paint products are contained on packaging labels.

Although the public will be exposed to the notified polymer during use of paint products, the risk to public

health is not considered to be unacceptable due to the assumed low hazard of the notified polymer.

## 7. ENVIRONMENTAL IMPLICATIONS

### Hazard Characterisation

No ecotoxicological data were submitted. Some classes of anionic polymers are moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This does not apply to the notified polymer and it is not expected to be a toxic hazard to algae.

### Environmental Risk Assessment

The fate of the majority of the notified polymer will be disposed to landfill either by waste disposal from professional painters (e.g. residues in cans) or by sharing the fate of the end-use articles, coated wood or plaster interior and exterior surfaces. Due to its high water solubility, the notified polymer that is disposed to sewage via waste disposal at the manufacturing sites (< 1%) and from DIY painters' waste (~6%) is expected to initially remain in the water compartment. The waste from the manufacturing sites will eventually end up in the ocean. Calculations indicate that the predicted environmental concentration (PEC) to the ocean will be low; at worst it will be 0.55 µg/L, based on 1% of the notified polymer being released over 55 days per annum to the Western Melbourne sewer that has an average daily flow of 329 ML per day. The calculated worst case PEC from the DIY painters' waste will also be low (0.39 µg/L) based on 6% of the notified polymer being released to the sewer nationwide per annum and the water consumption of the Australian population. However, these values are considered conservative as the polyanionic structure is expected to be neutralised by cationic counterions in sewage treatment plants which may decrease its water solubility and increase its association with the sludge.

In landfill, sediment or water, the notified polymer is expected to slowly degrade by abiotic and biotic processes to oxides of carbon and sulphur, and water vapour. In landfill, some of the notified polymer may leach to aquatic compartments due to its high water solubility. However, the majority is bound in the cured matrix and will not have the potential to leach. Due to its high molecular weight, the notified polymer will not readily cross biological membranes, and a low potential for bioaccumulation is predicted. The notified polymer is not expected to pose an unacceptable risk to the environment based on the reported use pattern.

## 8. CONCLUSIONS AND RECOMMENDATIONS

### Human health risk assessment

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

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

### Environmental risk assessment

Based on the reported use pattern, the notified polymer is not considered to pose a risk to the environment.

### Recommendations

#### CONTROL MEASURES

##### Occupational Health and Safety

- 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.

- Spray application should be carried out in accordance with the *National Guidance Material for Spray Painting*.
- A copy of the MSDS should be easily accessible to employees.

- 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.

#### Disposal

- The notified polymer should be disposed to landfill.

#### Emergency procedures

- Spills or accidental release of the notified chemical 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 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 dispersing agent for pigments used in paint manufacture, 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 provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.