File No PLC/1313

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Emulsogen PF 20 S

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/1313	Clariant (Australia) Pty Ltd	Polymer in Emulsogen PF 20 S	No	≤ 30 tonnes per annum	Component of paints and adhesives

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, noting that the formulation may be classified because of hazardous impurities.

  Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- 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 paints or adhesives, 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 a 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
Clariant (Australia) Pty Ltd (ABN: 30 069 435 552)
Level 3, Acacia Place, 296-324 Ferntree Gully Road
NOTTING HILL VIC 3168

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, purity, residual monomers/impurities, use details and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
EMULSOGEN PF 20 S (product containing the notified polymer at 50%)

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

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met*
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	Yellow / Brown viscous liquid
Melting Point/Glass Transition Temp	> 177 °C
Density	1,050 kg/m^3 at 20 °C
Water Solubility	Soluble (SDS)
Dissociation Constant	Not determined. The notified polymer contains ionisable functionalities. Therefore, it is expected to be ionised at the environmental pH range of 4 – 9.
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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	1-3	3-10	3-10	3-10	10-30

Use
The notified polymer will not be manufactured in Australia. It will be imported in to Australia as a component of finished paint and adhesive products at < 10% concentration in containers of various sizes. No reformulation or repackaging will occur in Australia. The paints and adhesives will be available for industrial and general public use.

6. HUMAN HEALTH RISK ASSESSMENT

The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. This is supported by tests submitted on the following toxicological endpoints on a product containing the notified polymer at 50%.

Endpoint	*Result*	*Effects Observed?*	*Test Guideline*
1. Rat, acute oral	LD50 > 2,000 mg/kg bw	yes	OECD TG 401
4. Rabbit, skin irritation*	non-irritating	no	OECD TG 404
5. Rabbit, eye irritation*	non-irritating	no	OECD TG 405

*Study results only were provided.

All results were indicative of low hazard. Unspecified clinical symptoms were observed on the day of treatment in the acute oral toxicity study but not at later observations.

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 not present in the notified polymer as introduced above the cut off concentrations for classification.

Given the low hazard, as shown for the acute oral toxicity and irritation endpoints and assumed for other endpoints, the risk posed by exposure to the notified polymer is not considered to be unreasonable.

7. ENVIRONMENTAL RISK ASSESSMENT

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. Based on the SDS, the notified chemical is not expected to be harmful to fish (LC50 > 500 mg/L, 96 h, *Danio rerio*, OECD Test Guideline 203).

The notified polymer will not be manufactured or reformulated in Australia. Therefore, release of the notified polymer to the environment is not expected from these activities. Accidental spills of notified polymer during import, transport or storage are expected to be adsorbed onto a suitable material and collected for disposal in accordance with local regulations.

The notified polymer will be used in finished paint and adhesive products by professional painters and DIY applications. During application of the coating, release to the environment may occur from residues in empty containers (≤ 1%), spills (< 1%) and from cleaning of equipment (< 1%). The majority of the release will be in the form of polymer adsorbed onto substrates. During use, paints and coatings are expected to be applied by brush, roller and spray techniques. It is expected that approximately 20-60% of the coating product will be in the form of overspray during spraying operations and will typically entail landfill disposal after being collected. Brushes, spray equipment and rollers will be cleaned by wiping them on paper/cloth followed by rinsing in water. The used paper/cloth and any drop sheets, cleaning cloths or rags will be disposed of to landfill. Residues in empty containers and spills (collected using inert material) are expected to be disposed of to landfill. As a worst case scenario it is assumed that 7% (including 5% from DIY use) of the notified polymer is

expected to be released to sewers. In sewage treatment plants, most of the notified polymer is expected to partition to sludge and sediments as it has high molecular weight. The notified polymer is not readily biodegradable based on measured data (26% after 28 days).

Once cured, the coatings containing the notified polymer will form an inert polymer matrix, and the incorporated notified polymer will not be bioavailable. Discarded end use articles containing the notified polymer are expected to be disposed of to landfill, recycled, or subjected to combustion which will entail thermal decomposition of the coating to form water vapour and oxides of carbon and sulphur. In landfill, the notified polymer is not expected to be mobile or bioavailable and will eventually degrade by abiotic and biotic processes to water and oxides of carbon and sulphur. Bioaccumulation is not likely based on its high molecular weight.

Therefore, the notified polymer is not considered to pose an unreasonable risk to the aquatic environment based on its assessed use pattern.