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

FULL PUBLIC REPORT

Texcare SRN 100

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**Director
NICNAS**

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FULL PUBLIC REPORT**Texcare SRN 100****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Clariant (Australia) Pty Ltd (ABN 30 069 435 552)
675-685 Warrigal Road
CHADSTONE VIC 3148

NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern

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

Manufacture/Import Volume

Site of Manufacture/Reformulation

Concentration in End-use Products

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)

2004

NOTIFICATION IN OTHER COUNTRIES

USA

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Texcare SRN 100 (100% active), Texcare SRN 180 (80% active)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) > 1000

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</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

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Yellow solid wax
Melting Point/Glass Transition Temp	35-37°C
Density	1125 kg/m ³ at 50°C
Water Solubility	miscible at 20°C
Dissociation Constant	No ionisable groups present.
Particle Size	Not applicable, waxy type substance
Reactivity	The polymer is stable in the range pH 3.0 - pH 8.0 which covers most of the normal environmental pH range (measured in 5% aqueous solution, no hydrolysis detected over period of 4 weeks at 45°C). At pH 9 in a hydrolysis study over 5 days when held at 50°C the notified polymer showed a significant decrease in the higher molecular weight components (by HPLC) and a strong increase in peak intensity in the low molecular weight region. It has been concluded that the polymer is not stable in alkaline solution. However, the conditions of pH 9/50°C are not expected to occur during the normal proposed end-usage of the polymer. Companies using the new polymer in cleaning formulations receive technical advice to ensure all formulations are at pH <8.5. Accordingly, the polymer is expected to be stable under normal conditions of use.
Degradation Products	Oxides of carbon

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS					
Year	1	2	3	4	5
Tonnes	<10	<10	<10	<10	<10

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The polymer will not be manufactured in Australia. It will be imported as 100% component of the product Texcare SRN 100.

Reformulation/manufacture processes

The new polymer will not be manufactured or reformulated by Clariant (Australia) Pty Ltd.

The polymer will be imported into Melbourne or Sydney as a 100% technical grade product. It will be used by companies in preparation of formulated products for end-use cleaning products.

The technical grade product will be packaged in either 50 kg plastic open head packs or 200 kg open head drums.

When used in production, the notified substance will need to be softened in a water bath to enable the waxy substance to be scooped or poured from packaging. The substance has low viscosity when melted and can be readily drained from packaging. Finished laundry and carpet cleaning products will involve blending of weighed ingredients in open or closed mixing tanks. Mixing will take place with general ventilation in the production area. Local exhaust ventilation above mixing tanks may be used in some cases.

End-use products will be packaged into 5 L, 10 L or 25 L plastic jerrycans in manual operations using hand nozzle dispensers. For smaller retail packages (500 mL, 1L), it is possible that bulk (1000 L IBC's) quantities will be sent to toll manufacturers for contract packaging.

Use

Non-ionic soil release polyester for household and industrial cleaning products.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
Transport and storage personnel	10	<1h/day	<20 days/year
Production operators	14	<2h/day	<20 days/year
Packaging operators	5	<1h/day	<20 days/year
Quality control personnel	10	<1h/day	<20 days/year

During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

During production, quality control and packaging operations, dermal contact with the notified polymer is the most likely route of exposure. The technical grade material is a wax-like material at temperatures below approximately 35 °C with low vapour pressure. The notified polymer will be liquefied in heated water baths if necessary prior to use. Ocular exposure and inhalation exposure are not expected to occur. Exposure will be prevented by the use of engineering controls, safety glasses and protective gloves and by following standard operating procedures in place to prevent exposure to other ingredients of end-use products.

PUBLIC EXPOSURE

End-use cleaning products containing low concentrations of the notified polymer will be introduced for sale to the industrial and institutional market and to the general public. Members of the public may have dermal contact with liquid products containing the polymer and possibly accidental ocular contact. However, exposure will be low due to the pattern of use, the low concentration of the notified polymer in the product and the normal practice for the public of either wearing gloves or washing the skin to remove products after use.

Other end-use cleaning products containing the notified polymer are intended for sale to industrial specialists. Members of the public may have contact with residual traces of the polymer on surfaces treated with end-use products. However, potential exposure will be low as residual quantities of the notified polymer will be at low concentration and diffuse.

6.2. Toxicology

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 the notified polymer.

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>
1. Rat, acute oral	LD50 >2000 mg/kg bw	No	Yes
4. Rabbit, skin irritation	Non-irritating	No	No
5. Rabbit, eye irritation	Non-irritating	No	Yes
6. Skin sensitisation - non-adjuvant test - Buehler	No evidence of sensitisation.	No	No

8. Genotoxicity - bacterial reverse mutation Non-mutagenic No No

All results were indicative of low hazard.

6.2.1. Discussion of observed effects

Rat, acute oral

All ten animals treated showed hunched posture, lethargy, pilo-erection and a decreased respiratory rate one hour after dosing. Hunched posture and pilo-erection persisted in all animals four hours after dosing. All animals had recovered and appeared normal on day one and for the remainder of the study.

Rabbit, eye irritation

Minimal conjunctival redness was noted in all treated eyes one hour after treatment. All treated eyes were normal at subsequent 24-hour, 48-hour and 72-hour observations.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is expected to be low. Some dermal exposure may occur during reformulation procedures. However, the wax-like nature of the polymer at ambient temperatures and the use of appropriate personal protective equipment will reduce any direct contact during handling and in the event of an accident. The OHS risk is also expected to be low due to the low hazards associated with the notified polymer.

PUBLIC HEALTH

The public may become exposed to the notified polymer through use of the cleaning products and by contact with residues of the polymer on cleaned items. However, the risk to the public from exposure to the notified polymer is considered low due to the low toxicity of the notified polymer, the pattern of use, the low concentration of the notified polymer in end-use products and the low residues. At the low concentrations present in the final products and due to the pattern of use, the notified polymer is not expected to cause eye irritation.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

It is expected that <0.1% of the notified polymer (<10 kg of notified polymer per annum) will be residual in packaging after melting for use in production. The notified polymer packaging will not be reused and will be disposed of through licensed waste disposal contractors. After mixing and packing end-use products, approximately 2 L of the end-use products will remain in a 5000 L mixing vessel (0.04% of notified substance or 4 kg per annum). Vessel wash liquids will be released to sewer under Trade Waste Agreements.

The remainder of the notified polymer will potentially be released to sewer when used industrially or domestically.

ENVIRONMENTAL FATE

The notified polymer will be used in industrial and domestic cleaning products and, will result in the eventual release of most of the import volume to the aquatic environment after use. Based on annual imported volume of up to 10,000 kg, and assuming the majority is eventually released to sewer and not removed during sewage treatment processes, the daily release on a nationwide basis to receiving waters is estimated to be 27.4 kg/day. The predicted concentrations in sewage effluent on a nationwide basis are estimated to be:

Amount entering sewer annually (V): 10000 kg

Population of Australia (P): 20 million

Amount of water used per person per day (W): 200 L

Number of days in a year (D): 365

Estimated (Ocean): 0.68 µg/L

Estimated (River) (V/[P x W x D]): 6.8 µg/L

It will be assumed that in the worst-case situation that all of the reformulated polymer will be released to sewer during washing processes.

The notified polymer is fully miscible in water and as such is likely to be mobile in the aquatic and terrestrial compartments of the environment. When released to sewer and landfill, as a consequence of its high miscibility, the notified polymer is not expected to have a high affinity with the sludge, soil and sediment. In water of landfill, the polymer should degrade to water and oxides of carbon over time given that it appears to be readily biodegradable. In the sewer, the notified polymer may also hydrolyse to a certain extent if the pH is high (around pH 9).

7.2. Environmental Hazard Characterisation

The following toxicological studies were submitted:

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed?</i>
Fish Toxicity	EC50 79 mg/L	Yes
Inhibition of Bacterial Respiration	EC50 >1000 mg/L	No

7.2.1. Discussion of observed effects

The toxicity of the notified polymer to zebra fish (*Danio rerio*) was measured by exposing zebra fish (7 fish were used per test concentration and control) to five nominal concentrations up to 100 mg/L and a control, at 23±2°C, 16-hours light photoperiod, dissolved oxygen at not less than 60% of air saturation value and pH 6.0 to pH 8.5. After 96-hours duration, the LC50 was 79 mg/L (58-100 mg/L), the NOEC was 50 mg/L. This is based on one dead fish at 25 mg/L and 50 mg/L (not considered biologically significant), but 2 deaths after 24-hours and 5 deaths after 96-hours at 100 mg/L.

The toxicity of the notified polymer towards bacteria was measured according to OECD 209 with a reported EC50 of 5.1 g/L. No test report provided.

Biodegradability of the notified chemical was measured according to the tests OECD 301 B and OECD 302B, and was found to be 79% (28-days) and 95% (17-days) respectively. No test report provided.

7.2.2. Environmental Hazard Assessment

No test reports are included for biodegradability or toxicity towards bacteria, and based on the test report data for zebra fish the notified polymer is harmful to fish. Poly-non-ionic polymers which have MW > 1000 are generally of low concern.

7.3. Environmental Risk Assessment

The notified polymer will be used in cleaning products and will result in the eventual release of most of the import volume to the aquatic environment after use. Based on annual imported volume of up to 10,000 kg, and assuming the majority is eventually released to sewer and not removed during sewage treatment processes, the daily release on a nationwide basis to receiving waters is estimated to be 27.4 kg/day. The predicted concentrations in sewage effluent on a nationwide basis are estimated to be:

Amount entering sewer annually (V): 10000 kg

Population of Australia (P): 20 million

Amount of water used per person per day (W): 200 L

Number of days in a year (D): 365

Estimated PEC_{aquatic} (Ocean): 0.68 µg/L

Estimated PEC_{aquatic} (River) (V/[P x W x D]): 6.8 µg/L

A proportion of the polymer is retained on fibres during initial and subsequent washing processes. The non-ionic soil release polyester is adsorbed onto hydrophobic synthetic fabric fibres to form a hydrophilic film during washing processes. The presence of the soil release polyester film on fibres prevents soils adhering directly to fibres. The affinity for hydrophobic soils for the hydrophilic film is reduced significantly compared to the untreated fibres. It will be assumed that in the worst case situation that all of the reformulated polymer will be released to sewer during washing processes.

The notified polymer is fully miscible in water and as such is likely to be mobile in the aquatic and terrestrial compartments of the environment. When released to sewer and landfill, as a consequence of its high miscibility, the notified polymer is not expected to have a high affinity with the sludge, soil and sediment. In water of landfill, the polymer should degrade to water and oxides of carbon over time given that it appears to be readily biodegradable. In the sewer, the notified polymer may also hydrolyse to a certain extent if the pH is high (around pH 9).

Aquatic toxicity data for fish were (LC50 of 79 mg/L). Using a safety factor of 1000 to account for the lack of toxicity data from more than one aquatic taxa, the predicted no effect concentration (PNEC) for the notified polymer for the protection of aquatic ecosystems is 79 µg/L. The worst case PEC/PNEC ratios for the aquatic environment if the notified polymer is used nation wide when released to ocean and inland rivers are 0.009 and 0.09, respectively. These values are significantly less than 1, indicating low concern to the aquatic compartment. During wastewater treatment procedures, some attenuation of the notified polymer is expected.

The notified polymer is not likely to present a risk to the environment when it is transported and used in the proposed manner.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is No Significant Concern to public health when used in the proposed manner.

8.3. Level of Concern for the Environment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

10. 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.
- A copy of the MSDS should be easily accessible to employees.

Environment

- No special control measures are required.

Disposal

- Recycle whenever possible or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Bury residue in an authorised landfill. Recycle containers if possible, or dispose of in an authorised landfill

Storage and Use

- The following precautions should be taken by reformulators regarding storage of the notified polymer:
 - The product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with government regulations.
 - Keep the container dry.
 - The polymer should not be used in formulations of pH > 8.5.

Emergency procedures

- Spills/release of the notified polymer should be prevented from entering waterways and be contained with sand or vermiculite. The recoverable product should be collected into labelled containers for recycling and the remainder should be absorbed with sand, earth, or vermiculite and placed in appropriate containers for disposal

Transport and Packaging

- The notified polymer may be packaged and transported as non-dangerous goods

10.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 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 subsection 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.
 - The amount of the notified polymer being introduced, or it is likely to increase above the projected maximum of 10 tones per annum. At that time, biodegradation test report may be required.

The Director will then decide whether secondary notification is required.

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