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

FULL PUBLIC REPORT

Polymer B in Palene 710A

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**Director
Chemicals Notification and Assessment**

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FULL PUBLIC REPORT**Polymer B in Palene 710A****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Henkel Australia Pty Limited (ABN: 82 001 302 996) of 135-141 Canterbury Road, Kilsyth, VIC 3137.

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, Import Volume, and Site of Reformulation

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

No

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer B in Palene 710A

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

The notified polymer meets the PLC criteria.

4. 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>
<i>Tonnes</i>	< 1	< 1	< 1	< 1	< 1

USE

The notified polymer is used as a surface coating agent.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The notified polymer in Palene 710A will be imported into Australia as a solution in a finished product, in closed head 200 L polypropylene drums by ship. It will be transported from the wharf to Henkel Australia Pty Ltd in Victoria for warehousing by truck where it will be stored before it is distributed to the customer. It will be stored at the customer site prior to use.

At the customer site, the notified polymer will be transferred to a dip tank from the 200 L drums through the use of pumping equipment. The notified polymer is then further diluted in the tank with deionised water so that the final solution contains approximately <1% of the notified polymer. During the process, samples are taken to the laboratory for batch adjustment and quality control testing. The finished coating is then filtered and pumped into the coating bath ready for coating of metal parts. If repairs to vessels or machinery are required, the affected areas are isolated and cleaned before and after maintenance.

Metal parts are suspended in baskets (16 items per basket) on an overhead conveyor, and are then immersed in a sequence of baths and after each bath the metal parts are rinsed with water followed by air blow-off excess solution into the bath. The final bath in this sequence contains the notified polymer where the metal parts are immersed in the tank for coating with the notified polymer followed by air blow-off of excess solution back into the bath solution. The coated parts are then passed through a dry oven to effect curing. The entire coating process is a closed system with recovery of rinse effluents.

The metal parts are individually sealed in plastic packaging and placed into cardboard box for distribution to customers of the metal parts.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
Waterside, transport and warehouse Formulation and application of coating:	4	1 hr	210 days/year
• Tank operators	10	2	210 days/year
• Application/drying operators	10	1-2	210 days/year
• Maintenance operators	2	1-2	210 days/year
• Laboratory technicians	5	2	210 days/year

Exposure details:

Transport and storage

Workers are not expected to be exposed to the imported notified polymer, as they will be handling closed containers. The notified polymer will be supplied in 200 L drums and transported in secure pallets. Exposure is possible only in the event of an accidental spill where the packaging is breached.

Formulation of notified polymer and application

At the customer's site, the solution of the notified polymer is transferred to a coating tank via a sealed pipe. Skin contact may occur during the opening of the drums and connection of the transfer pipes. Incidental skin contact with the notified polymer solution may also occur during the dilution stage of the notified polymer with deionised water and QC sampling and testing. Tank operators will wear overalls or PVC apron, gloves and safety glasses with side shields. Laboratory technicians will wear laboratory coats, gloves and eye protection during sampling and testing.

The coating process is a closed and automated system and therefore worker exposure is limited because of engineering controls and personal protective equipment worn by workers.

Drying of the coated metal part is carried out by oven baking under exhaust ventilation. Exposure to notified polymer at this stage is expected to be minimal. After coating the notified polymer is locked into the coating matrix and is unavailable for exposure.

Maintenance workers responsible for repairs and maintenance on transfer lines and pumps may be exposed to the notified polymer solution in the event of repairs being required while a batch is in process. To minimise exposure workers will wear overalls or PVC apron, gloves and eye protection.

6.2. Summary of Public Exposure

The public is unlikely to be exposed to the notified polymer during transport, storage, and application except in the accident of an accidental spillage.

The notified polymer is not available to the public and will be used in industrial scenarios only. The public is likely, however, to make contact with the cured polymer as coating on finished motor vehicle components. However, this is unlikely as the coated components are in an inaccessible section of the motor vehicle.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Warehouse

The notified polymer will not be manufactured in Australia. Local operations will include transport and storage, formulation and application by single end-user (in the metal finishing industry).

Palene 710A containing the notified polymer will be imported and stored in 200 L polypropylene drums. It will be transported from dockside by road to the warehouse for storage. It will then be sold to a single user in the metal finishing industry for formulation and coating of metal parts.

Release at the warehouse site to the environment may result only in the event of an accidental spill. It is estimated that a maximum of 1% of the notified polymer (up to 10 kg/year of notified polymer) would be lost during spillage. Spills are contained and soaked up with absorbent materials (e.g. sand, earth, vermiculite) and placed in a sealable, labelled container and disposed of to landfill. The spilled area is flushed with water. The waste material from flushing will go to a drain in the floor where it is collected in a pit. The pit is cleaned out periodically and the waste is sent off site for disposal to landfill by a licensed waste contractor.

End-use in Metal Finishing Industry

During coating of metal parts via dipping in large application tanks, environmental controls such as fully contained facilities, fully automated processes, bunding and safety procedures will limit releases. After each of the dipping processes, excess is air blow-off into dipping tanks for reuse. The final dipping stage involves the coating by the notified polymer in Palene 710A, where after dipping, excess coating is air blow-off from aluminium parts and collected back into the coating tank. Oven baking results in the polymer being locked within a tightly cross-linked network. Volatile products generated during baking are extracted to an afterburner and incinerated (forming oxides of nitrogen). This application system provides for reuse of the notified polymer by air blow-off into tank and therefore resulting in minimal waste.

On an annual basis, the contents of the coating application tank are transferred to storage tanks to allow cleaning of the application tanks. An estimated 1000 L of wash waters containing an estimated (< 5-6 kg) of the notified polymer at 2-3% concentration is collected by a licensed waste management contractor for treatment and disposal to landfill or by incineration. Waste from leaks and spills up to 3-4 kg per year of the notified polymer is estimated. A total of 2-3% of the notified polymer is also collected and sent off site for treatment and disposal by licensed waste contractor.

The expected quantity of waste generated from coating application is less than 15 kg of notified polymer/annum. Up to 3-4% residue of Palene 710A could remain in the empty 200L drums used in the metal finishing industry, which is approximately up to 30-40 kg per annum (based on import levels of < 1 tonne per annum of the notified polymer). Residues remaining in the drums will be reused. The drums will be cleaned with water and the wash water resulting from cleaning of the drums will be reused in the coating process. Empty drums will be collected by a licensed waste contractor and sent

off-site for disposal.

6.3.2. Environmental Fate

No environmental fate data is available.

The notified polymer is expected to be highly water soluble and, as a result, would be mobile in both terrestrial and aquatic compartments. However, there would be no release of the notified polymer to receiving waters. In landfill the notified polymer is expected to slowly degrade through abiotic and biotic processes to salts, water vapour and oxides of carbon and sulphur. The notified polymer is not expected to cross biological membranes due to its high molecular weight and water solubility and is therefore not expected to bioaccumulate.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Pale yellow liquid
Boiling point	Approximately 100°C
Specific Gravity	1.04 at 20°C
Water Solubility	Completely miscible with water
Dissociation Constant	Not determined, but contains carboxylic and sulphonate functional groups. Aliphatic carboxylic acid: pKa = 3.0-5.0 Derivatives of sulphonic acid: pKa = -1.0 – 1.0
Particle Size	Not applicable, as it is a liquid
Reactivity	Keep away from strong oxidising agents and strong acids.
Degradation Products	Oxides of nitrogen.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

The following toxicological studies were submitted:

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>
1. Rat, acute oral	LD50 > 10,000 mg/kg bw	no	yes

All results were indicative of low hazard.

8.1.1 Discussion of Observed Effects

Nine males and nine females were evaluated. The notified polymer was administered in the diet. The rats that finished the test diet showed slight diarrhoea on the first post-treatment day. This phenomenon had disappeared on the second post-treatment day and the rats looked healthy throughout the remaining part of the observation period. No deaths occurred. Macroscopic examination of the rats did not reveal any treatment-related gross alteration.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is supported by the low acute oral toxicity in rats.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No ecotoxicological data were submitted.

9.2. Environmental Hazard Assessment

No ecotoxicological data were provided for the notified polymer. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is overchelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone as is possible with the notified polymer. However, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

10. RISK ASSESSMENT

10.1. Environment

The notified polymer will interact with other components to form a stable chemical matrix and, once dry, is expected to be immobile and pose little risk to environment. After the useful life of the coated metal components in motor vehicles, most of the notified polymer will be recycled through metal recycling and some parts sent to landfill. Recycling treatment will destroy the notified polymer. Within a landfill environment, the notified polymer contained in waste from manufacture and application process and in metal scrap is expected to break down at a very slow rate.

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

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations are classified as hazardous to health in accordance with the NOHSC Approved Criteria for Classifying Hazardous Substances, workplace practices and control and procedure consistent with provisions of State and Territory hazardous substances legislation must be in operation.

10.3. Public Health

The notified polymer will not be available to the public. Members of the public are unlikely to come into contact with the notified polymer unless there is an accident during transport or storage. The public will be exposed to coated car components containing the notified polymer. However, the risk to public health will be negligible because at this stage, the notified polymer is bound within the paint matrix and unlikely to be bioavailable. Moreover, the treated parts are in an inaccessible area of the motor vehicle.

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1. Environmental Risk Assessment

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

11.2. Human Health Risk Assessment

11.2.1. Occupational health and safety

There is No Concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2. Public health

There is Negligible Concern to public health when used in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. 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.
- In the interest of occupational health and safety, the following guidelines and precautions should be observed for use of the notified polymer as introduced as Polymer B in Palene 710A:
 - Exhaust ventilation
- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer in solution as introduced as Polymer B in Palene 710A during coating applications:
 - Protective eyewear, impermeable gloves and chemical resistant industrial clothing and footwear.
- 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 NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC,1999b), 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 of in accordance with State/Territory waste disposal regulations through licensed waste contractors. Spill cleanup materials, container residues (solid), dried or baked polymer should be sent to landfill for disposal or be incinerated.

Emergency procedures

Spills/release of the notified polymer should be handled by containing the spilled material by dikes and adsorbing the spill using inert adsorbents. Liquid should be prevented from entering watercourse and drains. Wastes collected during spill/leak clean up should be placed in sealable labeled containers for disposal.

13.1. 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 Director will then decide whether secondary notification is required.