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

FULL PUBLIC REPORT

Puradd SC-84

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**Director
Chemicals Notification and Assessment**

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Puradd SC-84

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)

BASF Australia Ltd of 500 Princes Highway, Noble Park, Victoria, 3174

NOTIFICATION CATEGORY

Synthetic Polymer of Low Concern.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:
Chemical Identity and Manufacture/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

No

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Notified polymer: Puradd SC-84.

The notified polymer is a component of the product Puradd AP-97-10

3. COMPOSITION

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
No Substantial Degradability	Yes
Not Water Absorbing	Yes
Low Concentrations of Residual Monomers	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>	30-100	30-100	30-100	30-100	30-100

USE

The notified polymer is a component of a fuel additive package. This is added to petrol (gasoline) for the purpose of cleaning internal combustion engine intake systems.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Import, transport and distribution

The notified polymer is imported as a component (approximately 17%) of a fuel additive in both 205 litre drums and in bulk isotank containers. The fuel additive is transported by road to the customer storage facilities or refineries. The number of reformulation/blending sites is estimated to be six. It is anticipated that there would be 12 deliveries to these sites per year.

Gasoline formulation

Typically, 1-4 workers are involved in the blending process per site. The fuel additive container is connected by the operator to the transfer system via a flexible transfer hose. Appropriate amounts of additive are then pumped out of the containers into the blend tank, where it is mixed with gasoline and other multi-purpose additives. On completion, the container transfer hose/pipeline and pump are flushed through with gasoline. The transfer hose is then disconnected. The finished gasoline (typically containing 85 mg/litre of notified polymer) is then pumped into road tankers for transportation to distributors, retail outlets and industrial users. Other than the connection/disconnection of hoses the process is fully automated. Workers will be provided with suitable protective clothing including gloves, safety glasses, overalls and safety shoes. Local exhaust ventilation would be employed at all sites where natural ventilation is considered inadequate.

End Use

At service stations, the gasoline will be transferred to underground tanks. When required the gasoline would be pumped directly into automobile fuel tanks.

6. EXPOSURE INFORMATION

6.1. Summary of Environmental Exposure

Fugitive emissions of polymer during transport and blending are considered to be negligible. The new product is contained in 205 litre drums or bulk vessels. It is mixed, together with other multi-purpose additives, with gasoline, typically in batches of 10,000-100,000 litres. There is minimal leakage of the product during this blending process as it is essentially a closed automated system.

During repacking at the import site, a maximum loss of 0.5% per annum is anticipated, i.e. for an import volume of 100 tonnes of the notified polymer, this will amount to 500 kg. The expected amount to be lost annually due to spills at the blending sites will be approximately 40 kg in total. The maximum residual amount remaining in an empty 200 litre drum is ~1 %. A 200-litre drum, therefore, would be expected to contain up to 2 litres of Puradd AP-97-10. Assuming the new polymer is to be imported into Australia in volumes of up to 100 tonnes per annum of the notified polymer, the notifier estimates that a maximum of 0.75 tonnes of the new polymer may present either for incineration as drum washings during the reconditioning of the containers or for disposal as container residues. This estimate is based on the assumption that 75% of the new product will be supplied in drums and the remaining 25% in bulk containers to the Australian market. This equates to approx. 75 tonnes in drums and approx. 25 tonnes in bulk. It is anticipated that the empty drums with product residues will be taken off site and recycled through licensed drum reprocessors.

If incidental spillage occurs during normal operating procedures, it will be contained and soaked up with inert absorbent material (sand, soil or vermiculite) and placed in a sealable container for appropriate disposal. Such losses would be estimated to be <1 kg of product per transfer. Waste material is disposed of in accordance with local, state or national EPA regulations.

The end use of the new polymer is as a component of gasoline. Gasoline stocks would be stored in closed, underground tanks at retail outlets and would not be open to the environment. When required, the gasoline would be pumped directly into fuel tanks where it would remain in an essentially closed system until used. During transfer of gasoline from storage tanks to fuel tanks at retail outlets, there is the potential for some small spillage to occur. Such losses to the environment would be minimal. Components of gasoline lost in such spillages would be expected either to vaporise into the atmosphere or to be flushed away as spill residues. However, no vaporisation of the new polymer to the atmosphere

from spills is expected to occur and any small spill residues flushed away would contain negligible amounts of the new polymer.

Release of the new polymer from its end-use in gasoline is not anticipated. As used as part of a fuel, it is assumed by the notifier that the all the new polymer will be burnt, together with the gasoline, during the internal combustion process and would not be released to the environment.

6.2. Summary of Occupational Exposure

Import, transport and distribution

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

Gasoline formulation

Dermal and ocular exposure can occur during certain formulation processes e.g. connection/disconnection of transfer hoses. However, exposure to significant amounts of the notified polymer is limited due to the concentration of the notified polymer in the imported product (approximately 17%), engineering controls and personal protective equipment worn by workers.

End Use

Exposure of transport drivers and service station personnel to drips and spills may occur during the connection and disconnection of transfer hoses and during automobile fuel fills. Exposure is expected to be negligible due to the closed systems used and the low concentration of notified polymer in the gasoline (85mg /litre).

6.3. Summary of Public Exposure

The notified polymer will be available to the public only after it has been mixed with gasoline at the refinery. Incidental exposure could occur during filling of the automobile fuel tank. Given the low concentration (85 mg/litre) and the minimal direct contact with fuel under normal circumstances, public exposure is expected to be minimal

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Clear, colourless to light yellow liquid, with mild polyol odour.
Melting Point/Glass Transition Temp	~ -73°C at 1atm
Boiling Point	>104 °C at 1atm
Density	980 kg/m ³ at 25°C
Water Solubility	<1 mg/L at 20°C, pH 6-7 based on analogue data.
Reactivity	Expected to be stable under normal conditions of use.
Degradation Products	Oxides of carbon.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted.

9.2. Environmental Hazard Assessment

Nonionic polymers with a number average molecular weight in excess of 1000 are generally of low concern for ecotoxicity because they often have negligible water solubility.

10. RISK ASSESSMENT

10.1. Environment

The intended use pattern of the polymer in the fuel additive is not expected to result in a significant release to the environment as it is claimed to be completely destroyed by combustion within the petrol engine, resulting in oxides of carbon and hydrogen. In the event of spills and minor releases during transfer operations, the MSDS of the additive package containing the polymer contains information on procedures to reduce release to the environment. Small amounts of the notified polymer that are disposed of to landfill, either from drum residues or spill clean-ups, will be expected to be strongly bound to the soils and sediments and be unlikely to enter the water compartment due to its low solubility and anticipated high partition coefficient. In landfill, the notified polymer is not expected to hydrolyse but will slowly biodegrade.

There is no direct data to support the claim of complete combustion of the polymer to oxides of carbon and hydrogen when the fuel is burnt within the combustion chamber of petrol engines. However, as both the notified polymer and the constituents of the petrol of which it will be a minute part, are made up of hydrocarbon and oxygen, the notified polymer is not expected to survive the temperatures at which the fuel is exploded within the internal combustion engine.

Information on the effects of the notified polymer when blended in fuel with respect to the effect, if any, on emissions of CO₂, NO_x, hydrocarbons, particulates etc was sought from the notifier. This was provided in the form of an information document (publicity release) for the product range. This document indicated that the use of fuel additive products could reduce the emission carbon monoxide by 15% hydrocarbons and NO_x by 10% and reduce the emission of carbon dioxide by ~4%. It is noted that similar information was made available for a very closely related polymer previously assessed.

Given the above, environmental exposure and the overall environmental risk is expected to be low.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low due to limited exposure and the expected low toxicity.

The notified polymer is present in formulations containing hazardous ingredients. As these formulations are classified as hazardous to health in accordance with the NOHSC Approved Criteria for Classifying Hazardous Substances, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

10.3. Public Health

Members of the public may make incidental contact with fuel containing the notified polymer. However, the risk to public health will be negligible due to the expected low toxicity and because the notified polymer is present at low concentrations. As it is expected that the notified polymer will be destroyed within the combustion engine, public exposure to the notified chemical from exhaust emissions is expected to be negligible.

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 Low 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 based on its reported use pattern.

12. MATERIAL SAFETY DATA SHEET

12.1. 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.

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.

- A copy of the MSDS should be easily accessible to employees.
- As products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

- The following control measures should be implemented by end users to minimise environmental exposure during use of the notified chemical:
 - Do not allow material or contaminated packaging to enter drains, sewers or water courses.

Disposal

- The notified polymer should be disposed of by landfill or by incineration.

Emergency procedures

- If incidental spillage occurs during normal operating procedures, it will be contained and soaked up with inert absorbent material (sand, soil or vermiculite) and placed in a sealable container for appropriate 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.

No additional secondary notification conditions are stipulated.