

File No PLC/797

September 2008

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

FULL PUBLIC REPORT

Bayhydrol VP LS 2952/1

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:

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**Director
NICNAS**

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FULL PUBLIC REPORT**Bayhydrol VP LS 2952/1****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Bayer Australia Limited (Bayer MaterialScience) (ABN: 22 000 138 714)
391 - 393 Tooronga Road
Hawthorn East VIC 3123

NOTIFICATION CATEGORY

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

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)

None

NOTIFICATION IN OTHER COUNTRIES

None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Bayhydrol VP LS 2952/1 (<50% notified polymer in water)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >1000 Da

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

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise stated, the below physicochemical properties are for the product Bayhydrol VP LS 2952/1 containing the notified polymer at concentrations of <50%.

Appearance at 20°C and 101.3 kPa:	White liquid dispersion
Melting Point/Glass Transition Temp	100°C (boiling point of water)
Density	1000 kg/m ³
Water Solubility	Not tested, but expected to be low as the notified polymer has high molecular weight and contains limited amounts of hydrophilic functionality. However, aqueous dispersions of the notified polymer can readily be formed, such as the product Bayhydrol VP LS 2952/1.
Dissociation Constant	The notified polymer contains functionalities, which are expected to have a pKa value of 3–5, and will be ionised over the environmental pH range (4–9).
Reactivity	Expected to be stable under normal environmental conditions.
Degradation Products	None under normal conditions of use. The notified polymer contains hydrolysable functionality, but hydrolysis is unlikely to occur under ambient abiotic conditions in the environmental pH range of 4–9.

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year	1	2	3	4	5
Tonnes	< 100	100 – 200	150 - 250	200 - 300	250 - 350

Use

The notified polymer will be used as a binder in coating materials for cars and existing OEM (original equipment manufacturer).

Reformulation

The imported product containing the notified polymer (<50%) will be transferred by metered dosing to a mixing vessel, followed by mixing with other ingredients in a sealed vessel fitted with a local ventilation system. It will then be filtered and dispensed into 1 and 0.5 L plastic containers under exhaust ventilation for supply to customers (10-35% notified polymer). Quality control chemists will undertake sampling and analysis of the blended product. Equipment will be cleaned by flushing water through the system and washings will be collected into holding tanks for re-use.

End-use

The final paint products containing the notified polymer will be applied by spraying. At car manufacturing sites and crash repair shops, this is likely to involve workers manually opening the paint container and mixing it with other additives prior to application. The mixture will then be loaded into the spray equipment and applied in a spray booth. The level of ventilation present in the spray booth will vary between workshops. In smaller automotive refinish repair shops, spray applications may occur outside of a spray booth in a well ventilated area with workers wearing personal protective equipment and using newspaper sheets to collect overspray.

Mode of Introduction and Disposal

The notified polymer will be imported as a dispersion in water at < 50% concentration (Bayhydrol VP LS 2952/1). It will be imported by sea into Melbourne and will be contained in 1 and 0.5 L plastic containers. It will then be transported by road to the customer's warehouse, stored and subsequently distributed to paint formulators by road.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Occupational Health and Safety Risk Assessment

Dermal and ocular exposure to the notified polymer (< 50%) may occur due to drips, spills and splashes during

reformulation processes such as charging of mixer and blending, taking and testing quality control samples, batch adjustment, connecting filling lines and maintenance of equipment. However, exposure will be minimised by engineering controls such as local exhaust ventilation and the use of personal protective equipment. Inhalation exposure during formulation or filling of paint is possible as aerosols may be released during blending, however, the local exhaust ventilation systems in place should minimise exposure.

Spray painters may come into contact with the notified polymer through dermal, inhalation and ocular routes. However, exposure will be limited as the majority of the spray paint will be applied in a ventilated spray booth by workers using protective equipment. When applied outside of a spray booth, exposure will be lowered due to the ventilation in spraying areas and use of PPE by workers. After application and once dried, the paint containing the notified polymer will be cured into an inert matrix and the polymer unavailable for exposure.

Although exposure to the notified polymer could occur, particularly during spray operations that occur outside of spray booths, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer.

Public Health Risk Assessment

The notified polymer is intended for use by professional automotive spray painters only, and will not be sold to the public. Members of the public may make dermal contact with automobiles to which the notified polymer has been applied, however, the notified polymer will be trapped within a polymeric matrix and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered negligible.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

Environmental Risk Assessment

Environmental exposure from reformulation is not expected to exceed 1%, as accidental losses through spillage. These will be soaked up with inert adsorbent material, placed in sealed containers and disposed of to landfill. Residues from aqueous washing of equipment and containers will be collected and reused. The washed empty containers will be disposed of to landfill by waste disposal contractors.

Losses from overspray during spray application (high volume low pressure spray guns and, to a lesser extent, high pressure guns) are estimated at 30%. These are typically intercepted using spray booth filters and water scrubbers, and disposed of by licensed waste disposal contractors according to local, State and national regulations. In small car repair workshops, overspray will likely be collected on newspaper and disposed of to landfill as solid waste. Spray equipment will be cleaned using solvents and rags, which are collected for disposal by licensed waste disposal contractors. Small amounts (0.2%) will remain in empty containers. Waste from use of coatings containing the notified polymer will be disposed of to landfill in a cured and solidified form. As such, the notified polymer will be immobile, and not expected to leach through soil.

When applied to motor vehicle panels, the notified polymer will be incorporated into a hard, durable inert film, and as such will not present any risk to the environment. At the end of their useful life, coated metal panels are likely to be recycled for steel reclamation or placed into landfill. The notified polymer will either be destroyed in the blast furnace, with release of water vapour and oxides of carbon and nitrogen, or immobilised in landfill where it can be expected to degrade very slowly to the same products.

The use pattern for the notified polymer and associated environmental controls are expected to preclude aquatic exposure. Bioaccumulation is unlikely to occur because of the lack of aquatic exposure and the high molecular weight of the notified polymer. Therefore, the notified polymer will present a low risk to the environment when used as proposed in coatings for specialised application in car manufacturing and car repairs.

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.

- 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.

Environment

Disposal

- The notified polymer should be disposed of by landfill.

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by absorbing with sand and placing the waste solid into containers for 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 a binder in coating materials for cars and existing OEM (original equipment manufacturer), or is likely to change significantly;
 - the amount of notified polymer being introduced has increased from 350 tonnes per annum, or is likely to increase, significantly;
 - if 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 product containing 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.