

File No PLC/766

June 2008

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

**FULL PUBLIC REPORT**

**Baysilone Paint Additive 3468**

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****Baysilone Paint Additive 3468****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Momentive Performance Materials Australia Pty Ltd (ABN 47 105 651 063)  
Level 2, 600 Victoria St  
Richmond VIC 3121

## NOTIFICATION CATEGORY

Polymer of Low Concern

## EXEMPT INFORMATION (SECTION 75 OF THE ACT)

No details are claimed exempt from publication.

## 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)

Baysilone Paint Additive 3468

## CHEMICAL NAME

Siloxanes and silicones, di-Me, mixed 3-hydroxypropyl group- and [(trimethylsilyl)oxy]-terminated, ethoxylated propoxylated

## CAS NUMBER

954116-67-7

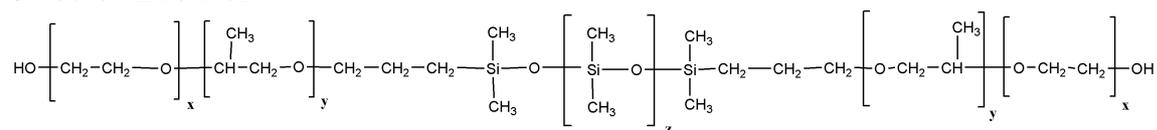
## OTHER NAME(S)

Polymer in Baysilone-Lackadditiv 3468, Polymer in Lackadditiv 3468

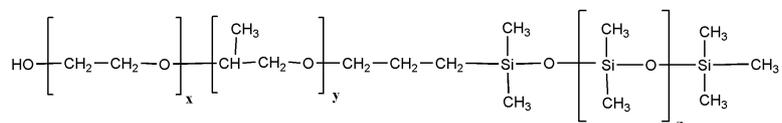
## MOLECULAR FORMULA

$(C_8H_{24}O_4Si_4.C_6H_{18}OSi_2.C_4H_{14}OSi_2.(C_3H_6O.C_2H_4O)_x.C_3H_6O)_x$

## STRUCTURAL FORMULA



AND



## MOLECULAR WEIGHT

Number Average Molecular Weight (Mn)	2540 Da
Weight Average Molecular Weight (Mw)	3770 Da
Polydispersity Index (Mw/Mn)	0.67
% of Low MW Species < 1000 Da	5%
% of Low MW Species < 500 Da	2%

## POLYMER CONSTITUENTS

<i>Chemical Name</i>	<i>CAS No.</i>	<i>Weight % starting</i>	<i>Weight % residual</i>
Cyclotetrasiloxane, octamethyl-	556-67-2	33.7	< 1.0
Disiloxane, hexamethyl-	107-46-0	7.4	< 1.0
Disiloxane, 1,1,3,3-tetramethyl-	3277-26-7	6.1	< 1.0
Oxirane, methyl-, polymer with oxirane, mono-2-propenyl ether	9041-33-2	52.8	< 6.0

## RESIDUAL INTERMEDIATES

<i>Chemical Name</i>	<i>CAS No.</i>	<i>Weight %</i>
Poly[oxy(dimethylsilylene)], Me stopped	9016-00-6	1.3
Siloxanes and silicones, dimethyl hydrogen-terminated	70900-21-9	< 2.6

## REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

**3. PLC CRITERIA JUSTIFICATION**

<i>Criterion</i>	<i>Criterion met</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. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance at 20°C and 101.3 kPa:	Yellow coloured liquid
Boiling Point	> 300°C
Pour Point	-12°C
Flash Point	140°C*
Density	1011 kg/m <sup>3</sup> at 20°C
Vapour Pressure	0.2 kPa at 20°C
Water Solubility	> 0.9 g/L at 20°C
Dissociation Constant	Not determined.
Particle Size	Not determined. The polymer is a liquid.
Reactivity	Stable under normal conditions of storage and use.
Degradation Products	None under normal conditions of use. Temperatures > 150°C in the presence of air (oxygen) have shown small amounts of formaldehyde are formed due to oxidative degradation.

## COMMENTS\*

Based on the flashpoint value, the notified chemical is a C1 Combustible liquid.

## 5. 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>
Tonnes	1	3	4	5	5

#### USE

An additive in paint coating products to act as a levelling and flow improvement agent and to aid de-aeration of aqueous paints.

#### Mode of Introduction and Disposal

The notified polymer will be imported as the neat liquid in 20 L and 200 L drums by ships into Sydney, Melbourne or Brisbane and transported by road to the importer warehouse. The imported product will then be sold to coating manufacturers for reformulation in Australia. The end-use paint product will contain 0.1-0.2% of the notified polymer.

Residues of the notified polymer in drums will be washed out and re-used for the next process batch. Cured polymer solids will be disposed of to landfill.

## 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

The notifier will not reformulate the notified polymer but will sell the imported material to local manufacturers that will blend the notified polymer with other ingredients to form the final paint coating products. The risk assessment is based on information about typical reformulation processes that was provided by the notifier.

Exposure to significant amounts of the notified polymer during reformulation and equipment cleaning is likely to be low because of the fully automated processes, personal protective equipment worn by workers and the low concentration of the notified polymer in the final reformulated product. During application of the paint coating, dermal exposure is possible when painting using a brush, and inhalation exposure could occur during spray painting, however, given the assumed low hazard of the notified polymer, the overall risk to workers is considered to be low.

### Public Health Risk Assessment

Members of the public may make dermal contact with the notified polymer, as an estimated 20-33% of paint coating products may be used in DIY applications. After application, the notified polymer is not likely to be bioavailable when the coating has dried and bound to the solid paint matrix. The overall risk posed by the notified polymer is expected to low, given the predicted low hazard of the notified polymer and the low concentration in the paint coat (0.1-0.2%).

## 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

The notified polymer is water dispersible, expected to be hydrolytically stable and not expected to be readily biodegradable. On the basis of water dispersibility, the notified polymer is likely to be mobile in soils, and should work its way into the grass root zone and below. The notified polymer should not hydrolyse (due to the lack of suitable functionality) but is expected to slowly degrade into oxides of carbon, silicon and water.

The majority of the notified substance will share the fate of the articles to which it has been applied. It is anticipated that these will be disposed of to landfill or recycled at the end of their useful lifetime. In landfill it

is expected that the notified polymer bound in the cured paint matrix will remain immobile within the soil. Incineration of the notified polymer as a result of recycling of the painted articles will result in the formation of water vapour and oxides of carbon and silicon.

As the notified polymer is considered of low concern to the environment, the overall environmental risk is expected to be low.

## 8. CONCLUSIONS AND RECOMMENDATIONS

### Human health risk assessment

Under the conditions of the occupational settings described and when used in the proposed manner, 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 substance is not considered to pose an unacceptable risk to the environment.

### Recommendations

#### REGULATORY CONTROLS

#### 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.

##### Material Safety Data Sheet

- The MSDS provided by the notifier should be amended as follows:
  - Include 'domestic use' in usage information in Section 1.
  - Remove statement 'A new polymer ingredient in his product is being assessed by NICNAS' in Section 16.

##### Disposal

- The notified polymer should be disposed of to landfill.

##### Storage

- The following precautions should be taken regarding storage of the notified polymer:
  - Keep containers tightly closed.
  - Keep away from heat and ignition sources.

#### Emergency procedures

- Spills and/or accidental release of the notified substance should not be allowed to enter surface water or sewer system. Spills should be collected/absorbed and disposed of to landfill.

#### 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 an additive in paint coatings, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased from 5 tonnes, 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 notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.