File No SAPLC/51

February 2007

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

MODAFLOW® 9200

This Self Assessment has been compiled by the applicant and adopted by NICNAS 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), administered by the Department of Health and Ageing and the Department of the Environment and Heritage has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
Australian Safety and Compensation Council
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email ascc.library@dewr.gov.au

This Full Public Report is 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:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

Director
NICNAS

TABLE OF CONTENTS

Part 2 –PLC Self Assessment

MODAFLOW® 9200

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
Cytec Australia Holdings Pty Ltd (ABN: 45 081 148 629)
Suite 1 level 1 21 Solent Circuit
Baulkham Hills NSW 2153
Australia

NOTIFICATION CATEGORY
Self Assessment: Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Chemical Name
Other Names
CAS Number
Molecular Formula
Structural Formula
Means of Identification
Number Average Molecular Weight
Weight Average Molecular Weight
Weight Percentage of Polymer Species with MW<1000 and MW<500
Reactive Functional Groups – include FGEW
Charge Density
Polymer Constituents
Residual Monomers and Impurities
Intended Use
Manufacturer or Import Volume

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
Can be commercialized in Europe (Exempt Polymer).
Korea: Polymer Notification in 2005
Canada: NSN in 2005. Listing in DSL expected by Q1, 2007.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
MODAFLOW® 9200 (~100% of notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) >1,000 Da

REACTIVE FUNCTIONAL GROUPS
The notified polymer contains only low concern functional groups.

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met*
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	Colourless to slightly yellow liquid
Melting Point/Glass Transition Temp	Not applicable (liquid)
Density	1,040 kg/m^3 at 20^{o}C
Water Solubility	<5 mg/L at 26°C Method used was Serial Dilution together with detection by Fluorescence, Refractive Index and Evaporative Light Scattering, complemented by GPC analysis. By GPC, no polymer was found in the aqueous phase indicating non-solubility. By Fluorescence, Refractive Index or Evaporative Light Scattering, the test sample remained hazy even at a dilution of up to 5 mg/L (the test limit), indicating non-solubility.
Reactivity	The polymer is stable under normal storage conditions. It is an additive and not a monomer or pre-polymer for a specific further reaction. The polymer is not expected to have oxidising properties, or known to be incompatible with other substances. The polymer contains hydrolysable groups; however, hydrolysis is unlikely in the environmental pH range of 4 to 9.
Degradation Products	None under normal conditions of use. No thermal degradation should occur except that discolouration due to oxidation would normally be observed at high temperatures.

Comments

The water solubility test was stopped at a dilution of 5mg/L. The test mixture remained turbid to hazy throughout the experiment indicating that the polymer was not particularly soluble in water. This was complemented by a GPC analysis on the aqueous phase. From the GPC result, no polymer was detected in the aqueous phase. Therefore, the notified polymer is non-soluble in water.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	10-15	15-20	20-30	30-40	30 - 100

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

MODAFLOW® 9200, containing ~100% notified polymer is imported via Sydney or Melbourne harbour in 25 kg or 210 kg steel drums. The drums will be transported by road to a warehouse for storage before being delivered to formulators without further repacking. It is expected that the drums

will be transported by road to individual recipients' sites.

Reformulation/manufacture processes
The notified polymer will not be manufactured or repackaged in Australia. It will be imported as MODAFLOW® 9200 by Cytec Australia Holdings Pty Ltd. and then redistributed in their original packaging to the coating and paint formulators. The notified polymer will be poured from 25 kg steel containers into 1,000 L capacity stainless steel vats at the customer's production site. After other batch ingredients have been added, the formulation is mixed at room temperature. The spray paint (containing <10% notified polymer) is then piped into 1 or 5 L steel containers, to be sold to paint applicators. The paint is applied through spray onto substrate parts within a controlled environment.

Use
The notified polymer is a flow and levelling agent for formulation in industrial spray coatings. The spray paint (containing <10% notified polymer) will be used for industrial applications on wood, metal or plastic surfaces.

6. HUMAN HEALTH IMPLICATIONS

❖ 6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Category of Worker	*Number*	*Exposure Duration*	*Exposure Frequency*
Transport and storage	4	1-2 hours/day	10 days/year
Plant Operators – to weigh, pour and mix into formulations	2	6 hours/day	60 days/year
Applicators – to spray formulation onto substrate and cure	4	8 hours/day	100 days/year
End use	400-500	2 hours/day	200-250 days/year

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages of the drums and containers. Workers are required to wear impermeable gloves when manipulating the drums in the course of their work.

During formulation, workers will manually weigh and transfer the polymer solution into the mixing vats. Workers will wear impermeable gloves, eye protection and coats. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes. However significant exposure will be limited due to the workplace practices and personal protective equipment used.

Throughout end use, spray painters can be exposed to the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimal as the spray paint is applied in a ventilated spray booth by workers using protective equipment. The percentage of notified polymer is not expected to exceed 10% of paint formulation therefore exposure to the notified polymer is further limited.

After application and once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable to exposure.

PUBLIC EXPOSURE
The notified polymer is for industrial use and will not reach the public nor be sold to the public except in the form of finished coated articles. Public exposure to the notified polymer itself would only be as a result of an accident during transportation of the notified polymer within Australia.
The notified polymer becomes an inert part of the cured coating. While members of the public may make contact with the cured articles, the notified polymer is unlikely to be bioavailable in this form.

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

❖ 6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is expected to be low, based on low hazard and low exposure as well as the engineering controls and personal protective equipment used by workers.

PUBLIC HEALTH

The low hazard of the notified polymer translates to an even lower risk to the public. The notified polymer makes up <10% of the paint formulation, which is then handled by professional paint applicators in an industrial environment. Neither the notified polymer nor the paint formulation containing the notified polymer will be made available to the public. Once the paint is applied and cured, the notified polymer will be contained in an inert cured matrix, and hence will not be bioavailable. The formulated paint is not available for retail sale. Risk to the public is considered negligible.

7. ENVIRONMENTAL IMPLICATIONS

❖ 7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks of the drums or steel packaged containers.

Under normal use, losses of the notified polymer through overspray, mixing of chemicals and cleaning of plant equipment as well as losses from residues in containers have been estimated to be a maximum of 50% or <50 tonnes per annum. Wastes from application will be captured in spray booth traps or on newspaper and will be hardened and disposed of to landfill. The remainder of the notified polymer will be bound in the paint matrix and not be available for direct release to the environment. Disposal of the automobile may be through landfill or recycling, and the fate of the paint will be related to that of the automobile.

During formulation and packaging, spills are expected to be minimal. When spills occur, they will be contained by bunding, collected with absorbent material and sent to a licensed off site waste disposal centre. Empty drums from import will be sent to drum re-conditioners. Total waste from all sources is expected to be approximately 2% of the import volume.

ENVIRONMENTAL FATE

The notified polymer is expected to be hydrolytically stable and to not be readily biodegradable. Due to its hydrophobic nature, it is expected that the notified polymer in landfill will associate with sediments and organic phases of soil and sediments, and slowly degrade to simple carbon compounds. During automobile recycling, the polymer will be completely thermally decomposed to form oxides of carbon and water vapour. Although the polymer is not expected to be readily bioavailable, it is not expected to bioaccumulate due to its high molecular weight.

❖ 7.2. Environmental Hazard Characterisation

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

❖ 7.3. Environmental Risk Assessment

No aquatic exposure is anticipated during manufacture and end use of the notified polymer. It is envisaged that 2% waste would be generated from reformulation processes. These wastes would be collected by licensed waste contractors and be incinerated. It is expected that practically all of the waste generated from end users (50% as overspray) will be disposed of in approved landfills as inert solid waste. In landfill, the solid wastes will not be mobile and will degrade slowly and not pose a significant risk to the environment.

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 MSDS of the notified polymer provided by the notifier were in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC 2003). They are published here as a matter of public record. 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.

- 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*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

- Spray painting should be in accordance with the NOHSC *National Guidance Material for Spray Painting*.

Environment

- The following control measures should be implemented by formulator to minimise environmental exposure during formulation of the notified polymer:
  - Bunding

- The following control measures should be implemented by end users (spray painters) to minimise environmental exposure during use of the notified polymer:
  - Exhaust ventilation with filter

Disposal

- The notified polymer should be disposed of by landfill or incinerated at an approved waste hander.

Storage

- The following precautions should be taken by the notifier and end-users regarding storage of the notified polymer.
  - Observe the general rules of industrial fire protection
  - Keep container tightly closed and dry in a cool, well-ventilated place

Emergency procedures

- Spills/release of the notified polymer should be handled by take up with absorbent material (eg sand, kieselguhr, universal binder)
- When picked up, treat material as prescribed under heading "Disposal".

❖ 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 Director will then decide whether secondary notification is required.