File No: PLC/267

January 2002

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

Polymer in Selleys All Fix

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act* 1989 (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 National Occupational Health and Safety Commission which also conducts the occupational health & safety assessment. The assessment of environmental hazard is conducted by the Department of the Environment and the assessment of public health is conducted by the Department of Health and Aged Care.

For the purposes of subsection 78(1) of the Act, copies of this full public report may be inspected by the public at the Library, National Occupational Health and Safety Commission, Plaza level, Alan Woods Building, 25 Constitution Avenue, Canberra ACT 2600 between 9am to 5pm Monday to Friday.

Copies of this full public report may also be requested, free of charge, by contacting the Administration Coordinator on the fax number below.

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Director
Chemicals Notification and Assessment

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1. APPLICANT

Henkel Australia Pty Ltd of 1 Clyde Street, Silverwater NSW 2128 (ACN 001 302 996) has submitted a notification statement in support of their application for an assessment certificate for the synthetic polymer of low concern (PLC) 'Polymer in Selleys All Fix'.

2. IDENTITY OF THE CHEMICAL

The chemical name, CAS number, molecular and structural formulae, molecular weight, spectral data and details of the polymer composition have been exempted from publication in the Full Public Report.

Marketing names: 20.0.3+3 (notified polymer), PA 700, Selleys All fix (formulation)

3. POLYMER COMPOSITION AND PURITY

Details of the polymer composition have been exempted from publication in the Full Public Report.

4. PLC JUSTIFICATION

The notified polymer meets the PLC criteria.

5. PHYSICAL AND CHEMICAL PROPERTIES

Property	Result	Comments
Appearance	Transparent liquid	
Boiling point	Not determined	
Density	1 000 kg/m^3	
Water solubility	Not determined	The water solubility was not determined for this notification. However, the notifier expects the

		polymer to be insoluble in water. The notified polymer consists polypropylene oxide groups and other functional groups known to be insoluble.
Particle size	Not applicable	As it is in liquid form.
Flammability	> 100 ^{o}C	
Autoignition temperature	not determined	
Explosive properties	Not determined	
Stability/reactivity	Stable, reacts with water under polymerisation with generation of methanol	
Hydrolysis as function of pH	Not determined	The notified polymer contains carbamate linkages which are unlikely to undergo significant hydrolysis in the environmental pH range of 4 to 9. However, on contact with moisture, the silane moiety of the notified polymer will hydrolyse to form the corresponding silyl alcohol which then polymerises.
Partition coefficient	Not determined	The partition coefficient has not been determined for this notification. However, its reactivity with water, and the likely hydrophilic nature of the products are indicative of partitioning into the organic phase.
Adsorption/desorption	Not determined	The notified polymer is expected to be immobile in soil due to its low expected water solubility.
Dissociation constant	Not determined	The notified polymer contains no functional groups that may be expected gain or lose a proton in the environmental pH range of 4 to 9.

6. USE, VOLUME AND FORMULATION

Use:
The polymer is a component of one pack adhesive product (<50%) and will be imported into Australia as part of the final product. The product Selleys All Fix is formulated to be adhesive for do-it-yourself, handymen and craftsmen for small renovation and assembly jobs around

the house. Typical substrates, which are bonded, are metal, wood, stone, ceramics, masonry, glass, tiles and plastic.

Manufacture/Import volume:
The product is to be imported in standard 300 ml cartridges and standard 200 ml tubes. The estimated quantity of the notified polymer contained in the adhesive being imported is 15 tonnes per annum for the first five years.

Formulation details:
No manufacture or reformulation will occur in Australia.

7. OCCUPATIONAL EXPOSURE

The notifier has not provided details and numbers of people exposed.

Exposure route	Exposure details	Controls indicated by notifier
Retailers *(expected to be 100 individuals, exposed 1 hour/day, 100 days/year)*		
Exposure unlikely	The imported product will not be opened during retail. Exposure to the notified polymer, at less than 50% in the finished product, will only occur in the event of accidental spillage.	No controls required.
End use: *Do-it-yourself and craftsmen (expected to be 1000 individuals (professionals and the public), exposed 8 hours/day, 50 days/year)*		
Dermal	The adhesive product containing the notified polymer is applied using caulking type application guns (390 g cartridge product).	Plastic or rubber gloves are worn during adhesive application. Ensure work area has adequate ventilation.
Transport and storage The adhesive product is off loaded from the dockside and transported by road.		
Exposure unlikely	Workers would be exposed dermally in the event of accidental spillage.	The maximum potential for exposure is 1-2 hours/day up to 10 days/year.
Disposal*:* Any residual material will be disposed of to landfill or incineration.		

Exposure unlikely.	The material remaining in tube/ cartridge will be minimal to have any impact.	The maximum potential for exposure is up to 100 days/year.

8. PUBLIC EXPOSURE

The public is unlikely to be exposed to products containing the notified polymer during transportation or storage. The product, adhesives, will be available to do-it-yourself and craftsmen, as such public exposure is likely to be significant.

9. ENVIRONMENTAL EXPOSURE

9.1. Release

It is expected that cartridges and tubes containing residual polymer (< 1%) will be disposed in domestic landfill. The notifier indicates that residues will be low as the plunger of the cartridge can be pushed to the very end and the tube squeezed so that all the product is expelled.

The remainder of the notified polymer will be used by do-it-yourself enthusiasts and craftsman who carry out renovating and assembling jobs around the house. In practice there will be some wastage that will readily polymerise. This will also be the case for part empty containers where moisture has entered.

9.2. Fate

The majority (99%) of the notified polymer will polymerise to form a very high molecular weight and stable polymer. Therefore once cured, the notified polymer is expected to be immobile in the environment.

Empty import cartridges with residual sealant will be disposed with landfill where, on exposure to air, the sealant will cure and form a very high molecular weight polymer and remain immobile in the environment. The notifier indicates that some incineration of wastes containing the notified polymer may occur which would produce water vapour and oxides of carbon and silicon.

The notified polymer is not expected to bioaccumulate due to its low water solubility and high molecular weight (Connell, 1990).

10. EVALUATION OF HEALTH EFFECTS DATA

No toxicological data were submitted.

Health Effects of the Constituents and Hazardous Impurities of the Notified Polymer and its Additives/Adjuvants & Regulatory Controls

Constituents:
None

Hazardous Impurities:
None

Additives/Adjuvants
None

11. EVALUATION OF ENVIRONMENTAL EFFECTS DATA

No ecotoxicological data were provided.

12. ENVIRONMENTAL RISK ASSESSMENT

The notified polymer contains a silane functionality that is expected to react with moisture in the air to form the corresponding silyl alcohol which will polymerise to form a very high molecular weight polymer. Therefore once cured, the notified polymer is expected to be immobile and pose little risk to the environment.

Empty import cartridges containing residual adhesive will be disposed with landfill where, on exposure to air, the sealant will cure and form a very high molecular weight polymer and as such should pose little risk to the environment.

The notified polymer is not expected to bioaccumulate due to its low water solubility and high molecular weight.

The low environmental exposure of the notified polymer as a result of the proposed use indicates the overall environmental risk should be low.

13. HEALTH AND SAFETY RISK ASSESSMENT

13.1. Hazard assessment

No toxicological information has been provided for the notified polymer and therefore the substance cannot be assessed against the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999). The overall toxicity of the notified polymer is expected to be low as it has a high molecular weight and would not readily cross biological membranes.

The MSDS of the product Selleys All Fix containing the notified polymer indicates that it may cause irritation to the eyes, skin and if swallowed. Repeated and prolonged skin contact may result in irritation.

13.2. Occupational health and safety

Waterside, warehouse and transport workers will be only exposed to the notified polymer in the event of an accident or damage to packaging. The occupational health risk to these

workers is negligible, considering the small quantities of notified polymer in individual cartridges/ tubes and the low hazard it presents.

Minor dermal exposure may occur to workers while applying the adhesive. The design of small nozzle for the cartridges and tubes will minimize the exposure to the notified polymer. The product label contains instructions on how to use the adhesive correctly. Industrial controls for the safe use of the product include adequate ventilation in the work area. Plastic or rubber gloves are recommended for workers handling the adhesive.

Based on the low toxicological hazard presented by the polymer and the expected very low exposures, the health risk posed to workers by the notified polymer is low.

13.3. Public health

Dermal exposure to the uncured adhesive is likely to be significant, but the MSDS for the product states only a potential for irritation. Once cured the polymer is expected not to be bioavailable. The risk to public health is therefore expected to be low.

14. MSDS AND LABEL ASSESSMENT

14.1. MSDS

The MSDS for the notified polymer and Selleys All Fix product containing the notified polymer were provided in accordance with the *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 1994a).

These MSDS were provided by the applicant as part of the notification statement. The MSDS for the product Selleys All Fix is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of the applicant.

14.2. Label

The labels for the products containing the polymer provided by the notifier were in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC, 1994b). The accuracy of the information on the labels remains the responsibility of the applicant.

15. RECOMMENDATIONS

Control Measures

Occupational Health and Safety

- Employers should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer in the cartridge/ tube:
  - Avoid spills.
  - Spillages should cleaned up promptly.
  - Plastic or rubber gloves to be used.

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.

15.1 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 Section 64(1) of the Act; if
  - the notified polymer is introduced in a chemical form that does not meet the PLC criteria.

(2) Under Section 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.

16. REFERENCES

Connell D. W. (1990) General characteristics of organic compounds which exhibit bioaccumulation. In Connell D. W., (Ed) Bioaccumulation of Xenobiotic Compounds. CRC Press, Boca Raton, USA.

National Occupational Health and Safety Commission (1994a) National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(1994)]. Australian Government Publishing Service, Canberra.

National Occupational Health and Safety Commission (1994b) National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]. Australian Government Publishing Service, Canberra.

National Occupational Health and Safety Commission (1999) Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1994)]. Australian Government Publishing Service, Canberra.