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Date: 9 November, 1993

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION  
AND ASSESSMENT SCHEME**

**FULL PUBLIC REPORT/SUMMARY REPORT**

**EXXPRO**

This Assessment has been compiled in accordance with the provisions of *the Industrial Chemicals (Notification and Assessment) Act 1989, as amended* and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by Worksafe Australia which also conducts the occupational health & safety assessment. The assessment of environmental hazard is conducted by the Commonwealth Environment Protection Agency and the assessment of public health is conducted by the Department of Health, Housing and Community Services.

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, Worksafe Australia, 92-94 Parramatta Road, Camperdown NSW 2050, between the hours of 10.00 a.m. and 12.00 noon and 2.00 p.m. and 4.00 p.m. each week day except on public holidays.

Under subsection 34(2) of the Act the Director of Chemicals Notification and Assessment is to publish this Report in the Chemical Gazette on .

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Director  
Chemicals Notification and Assessment

**FULL PUBLIC REPORT/SUMMARY REPORT****EXXPRO****1. APPLICANT(S)**

Kemcor Australia of 471-513 Kororoit Creek Road, Altona,  
Victoria 3018

**2. IDENTITY OF THE POLYMER**

The Polymer EXXPRO has been notified as a synthetic polymer of low concern under section 23 for the purposes of section 24A of the *Industrial Chemicals Notification and Assessment Act 1989, as amended* (the Act). The polymer meets the criteria for a synthetic polymer of low concern specified in regulation 4A of the Act and can be considered to be of low hazard to human health. Therefore, the chemical name, CAS number, empirical and structural formulae, residual monomers and impurities, specific use, site of reformulation have been exempted from publication.

**Trade name(s) :** EXXPRO

**Number-average molecular weight:** 130,000

**Maximum percentage of low  
molecular weight species**

. (molecular weight < 1000): 0.1%  
. (molecular weight < 500): 0.05%

**Table 1: Polymer Constituents**

Constituent weight	Cas No.	%
Bromine	7726-95-6	0.3-6
Isobutylene	115-11-7	85-98
p-Methylstyrene	622-97-9	2-15

**Method of detection  
and determination:**

Not available

**3. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance at 20°C and 101.3 kPa:** Slightly yellow to  
amber rubbery solid

<b>Odour:</b>	Not identified
<b>Glass-transition Temperature: Temperature:</b>	-60°C to -55°C
<b>Density:</b>	900 kg/m <sup>3</sup>
<b>Water Solubility:</b>	Insoluble in water
<b>Vapour pressure:</b>	Not applicable
<b>Flammability Limits:</b>	Not determined
<b>Hydrolysis:</b>	The polymer does not contain functional groups that are likely to undergo hydrolysis
<b>Dissociation constant:</b>	The polymer does not contain functional groups that are likely to dissociate
<b>Flash point:</b>	250°C
<b>Decomposition temperature:</b>	Decomposition will occur at 250-300 °C to volatile and halogenated hydrocarbons and hydrogen bromide
<b>Autoignition Temperature:</b>	Not available
<b>Explosive Properties:</b>	Not available
<b>Reactivity/stability:</b>	Chemically stable, resistant to hydrolysis, thermal degradation, photodegradation or depolymerisation
<b>Particle size distribution:</b>	> 1 cm

#### 4. PURITY OF THE CHEMICAL

The total amount of residual monomers and impurities is less than 0.344% by weight.

## **5. INDUSTRIAL USE**

EXXPRO will be used as a component in a rubber compound for automotive industry.

The intended import volume is estimated to be , 200-300 tonnes per year during the first five years.

## **6. OCCUPATIONAL EXPOSURE**

EXXPRO will be imported as 34 kg bales of rubber wrapped in polyethylene film.

Two workers will be involved in receiving the notified polymer at the dock and two others will be involved in transporting it to customers for reformulation. One to four mixing room operators will be handling wrapped bales using mechanical lifting and cutting devices to obtain the quantity needed for each formulation. After mixing with carbon black and other additives the product containing the notified polymer will be used in the manufacture of the end use product. It is estimated that a total number of 15-20 workers will be involved in handling EXXPRO.

## **7. PUBLIC EXPOSURE**

The public may be exposed to the polymer in motor car components, however the polymer properties suggest that there should be negligible risk to public safety.

## **8. ENVIRONMENTAL EXPOSURE**

### **. Release**

The notifier states that the release of the polymer to the environment as a result of the manufacturing process is considered to be negligible. Fugitive emissions into ambient air and water during transport and reformulation would be expected to be negligible due to the physical form and chemical nature of the polymer and due to the nature of the reformulation process. The polymer is a solid which softens rather than melts on heating. It is insoluble in water and would not be expected to give off any fumes or vapour under normal conditions. If emissions did occur, the mixing

procedure for the reformulation of the polymer is a sealed process with an independent ventilation system. There is no release into emission control technology as the polymer is imported into Australia and not manufactured here.

During the reformulation process, approximately 1% of the polymer would be expected to be waste. This is the normal rejection rate for poorly made tyres. It is estimated that 2-3 tonnes of waste polymer would be generated in this way. The waste polymer would be disposed of at a landfill.

It is estimated approximately 20 tonnes of the polymer per year will be used as a component of small rubber parts for motor cars. Assuming offcuts (trimmings) from the manufacturing process result in a waste level of 2%, approximately 400 kg of waste polymer will be landfilled per annum from this use.

#### . **Fate**

The polymer is unlikely to readily biodegrade or hydrolyse under environmental conditions due to its low water solubility, and its high molecular weight.

Polymer that is disposed to landfill will remain at the site of deposition and is unlikely to leach due to its physico-chemical characteristics.

### 9. **ASSESSMENT OF ENVIRONMENTAL EFFECTS**

No ecotoxicological data were provided, which is acceptable for polymers of NAMW > 1000 according to the Act.

### 10. **ASSESSMENT OF ENVIRONMENTAL HAZARD**

The polymer is unlikely to present a hazard to the environment as it will be enclosed in rubber articles for use in the automotive industry.

The disposal of waste polymer to the landfill will present a negligible hazard to the environment as the polymer will remain at the site of deposition and is unlikely to leach due to its physico-chemical characteristics.

### 11. **ASSESSMENT OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY EFFECTS**

EXXPRO has been notified as a synthetic polymer of low concern under section 23 for the purposes of section 24A of the *Industrial Chemicals Notification and Assessment Act 1989*, as amended (the Act).

During thermal processing the most likely route of exposure to the notified polymer is by the dermal route. The Material Safety Data Sheet (MSDS) states the hot polymer may cause thermal burns and vapours formed at elevated temperatures may cause eye and respiratory tract irritation.

The polymer meets the criteria for a synthetic polymer of low concern specified in regulation 4A of the Act and can therefore be considered to be of low hazard to human health.

## **12. RECOMMENDATIONS**

To minimise occupational exposure to "EXXPRO" the following guidelines and precautions should be observed:

- . if engineering controls and work practices are insufficient to reduce exposure to a safe level, the following personal protective equipment which complies with Australian Standards should be worn:
  - . safety glasses or face shields {AS 1336-1982(1), AS 1337-1984 (2)};
  - . thermal resistance gloves {AS 2161-1978(3)}; and
  - . respiratory protection {AS 1715-1991(4), AS 1716-1991(5)};
- . good housekeeping and maintenance should be practiced;
- . good personal hygiene should be observed; and
- . a copy of the Material Safety Data Sheet (MSDS) for Exxpro and for products containing it should be readily accessible to employees;

## **13. MATERIAL SAFETY DATA SHEET**

The Material Safety Data Sheet (MSDS) for "EXXPRO" was provided in Worksafe Australia format (6). This MSDS (Attachment 1) was provided Kemcor Australia as part of their notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of Kemcor Australia.

## **14. REQUIREMENTS FOR SECONDARY NOTIFICATION**

Under the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act), secondary notification of EXXPRO shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. No other specific conditions are prescribed.

## 15. REFERENCES

1. Australian Standard 1336-1982, "Recommended Practices for Eye Protection in the Industrial Environment", Standards Association of Australia Publ., Sydney, 1982.
2. Australian Standard 1337-1984, "Eye Protectors for Industrial Applications", Standards Association of Australia Publ., Sydney, 1984.
3. Australian Standard 2161-1978, "Industrial Safety Gloves and Mittens (excluding Electrical and Medical Gloves)", Standards Association of Australia Publ., Sydney, 1978.
4. Australian Standard 1715-1991, "Selection, Use and Maintenance of Respiratory Protective Devices", Standards Association of Australia Publ., Sydney 1991.
5. Australian Standard 1716-1991, "Respiratory Protective Devices", Standards Association of Australia Publ., Sydney 1991.
6. National Occupational Health and Safety Commission, *Guidance Note for the Completion of a Material Safety Data Sheet*, 2nd. edition, AGPS, Canberra, 1990.