File No: NA/680

April 1999

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

Promois E-118D

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Director
Chemicals Notification and Assessment

FULL PUBLIC REPORT

Promois E-118D

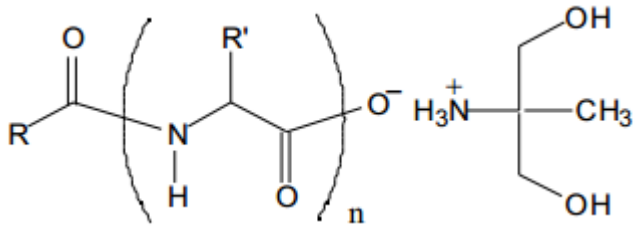
1. APPLICANT

Fernz Specialty Chemicals Pty Ltd of 70 Marple Ave VILLAWOOD NSW 2162 and Procter and Gamble Pty Ltd of Level 2/99 Phillips St PARRAMATTA NSW 2124 have submitted a limited notification statement in support of their application for an assessment certificate for Promois E-118D.

2. IDENTITY OF THE CHEMICAL

Chemical Name:	Collagens, hydrolysates, isostearoyl, compounds with 2-amino-2-methyl-1,3-propanediol
Chemical Abstracts Service (CAS) Registry No.:	169590-82-3
Other Names:	AMPD-Isostearoyl hydrolysed collagen Aminomethylpropanediol salt of isostearoyl hydrolysed collagen
Trade Name:	Promois E-118D
Molecular Formula:	not applicable

Structural Formula:



RCO = Isostearic acid radical

R' = side chains of various amino acids (mainly hydroxyproline)

n has an average value of 3

Molecular Weight:	approximately 700

From the molecular weight, it is possible to calculate that the notified chemical contains 15 % (w/w) 2-amino-2-methyl-1,3-propanediol (AMPD).

Method of Detection and Determination:	infrared spectroscopy
Spectral Data:	IR 3296, 3071, 2924, 2855, 1710, 1639, 1547, 1460, 1400, 1379, 1244, 1072, 920, 723, 701 cm^{-1} (pure notified chemical)

3. PHYSICAL AND CHEMICAL PROPERTIES

The imported product, Promois E-118D, is an ethanol-water solution of AMPD-Isostearoyl hydrolysed collagen, containing 25 % notified chemical. The physico-chemical properties are variously those of the imported solution (as indicated) and of the pure notified chemical.

Appearance at 20°C and 101.3 kPa:	Promois E-118D: light yellow to light brown transparent liquid
Boiling Point:	Promois E-118D: 78°C (based on ethanol)
Specific Gravity:	Promois E-118D: 0.85-0.93 at 20°C
Vapour Pressure:	Promois E-118D: 5.8 kPa at 20°C (based on ethanol)
Water Solubility:	approximately 250 g/L at 25°C
Partition Co-efficient (n-octanol/water):	not determined (see below)
Hydrolysis as a Function of pH:	no hydrolysis expected under environmental conditions (see below)
Adsorption/Desorption:	not determined (see below)
Dissociation Constant:	pK_a: AMPD 10.8 isostearoyl hydrolysed collagen ~ 2.35
Flash Point:	Promois E-118D: 22°C (based on ethanol)
Flammability Limits:	Promois E-118D: Upper Explosive Limit = 19 % Lower Explosive Limit = 3.3 % (based on ethanol)

Autoignition Temperature:	the notified chemical is not expected to undergo autoignition
Explosive Properties:	not explosive
Reactivity/Stability:	not reactive

Comments on Physico-Chemical Properties

The notifier did not provide values for partition coefficient, adsorption/desorption or dissociation constant, but did address these properties.

Calculations for environmentally relevant physico-chemical parameters were undertaken using the quantitative structure activity relationships (QSAR) of the US Environment Protection Agency ASTER database (US Environment Protection Authority, 1998). The calculations were based on the molecular structure where n = 1 and containing a single hydroxyproline side chain. The software only furnished values for vapour pressure, pKa, hydrolysis half-life and BOD half-life.

ASTER estimated the vapour pressure for the salt of 3.8×10^{-17} mm Hg indicating that it has very low volatility.

The notified chemical is a salt and is expected to have significant water solubility. It has been estimated visually to be about 25%, after which addition of the chemical to the aqueous solution turns it cloudy.

The salt contains amide linkages that could be expected to undergo hydrolysis under extreme pH conditions. However, hydrolysis is unlikely in the usual environmental pH range of between 4 and 9. ASTER estimated the hydrolysis half-life at greater than 1000 days.

The chemical contains a long-chain fatty acid group and a polar head group and will thus have surface active properties. Hence, a reliable partition coefficient could not be obtained.

The notifier suggests that Promois E118D is expected to fully dissociate in the environment with the individual components expected to behave independently. Thus, the 2-amino-2-methyl-1,3-propanediol (AMPD) group is expected to be polar and to bind to silicates, while the isostearic acid hydrolysed collagen component is expected to be non-polar and to bind to organic matter in soils.

Promois E118D is a salt and so will dissociate in water. The pKa of AMPD is 10.8. The pKa of the isostearic acid hydrolysed collagen component is expected to be 2.35 based on glycine. ASTER calculations furnished a pKa value of 3.56 for the molecule.

4. PURITY OF THE CHEMICAL

Degree of Purity: 99.9 %

Toxic or Hazardous Impurities: none

Non-hazardous Impurities (> 1% by weight): none

Additives/Adjuvants:

Chemical name:	water
CAS No.:	7732-18-5
Weight percentage:	25 %
Chemical name:	ethanol
CAS No.:	64-17-5
Weight percentage:	50 %

5. USE, VOLUME AND FORMULATION

The notified chemical is used as a hair and skin conditioning agent in hair sprays. It has fixative and anti-static properties for hair. Approximately 900 kg per year of notified chemical is to be imported at a concentration of 25 % (w/v) in the product Promois E-118D, a solution of the notified chemical in ethanol and water. The product will be imported in 16 kg plastic drums. The imported product will be reformulated in Australia at a single site by mixing with other components of hair sprays. The concentration of notified chemical in the hair sprays will not exceed 0.1 %. The final products will be in the form of aerosols (300 g) and pump packs (150 and 220 g).

The majority of the formulated hair sprays (estimated 75 %) will be exported to Japan and other Asian countries while the remainder will be sold through retail outlets in Australia.

6. OCCUPATIONAL EXPOSURE

Transport and Storage
It is estimated that 4-6 waterfront and transport workers (1-2 hours per day, 10-15 days per year) and 2-3 warehouse workers (2 hours per day, 100 days per year) will be involved in handling the notified chemical. These workers are not expected to be exposed to the chemical except in the case of an accident involving spillage of the solution. The estimates of time include handling the imported concentrated solution and the reformulated product.

Formulation
It is estimated that 10-20 operators will be involved in these processes for 8 hours per day, 100 days per year. The manufacturing workers will handle both the imported concentrated solution and the diluted final product. Filling workers will only handle the final product. The concentrated solution will be transferred by metered dosing pumps into an enclosed 1000 L mixing tank, where it will be blended with other ingredients to produce the final product. Each batch is then transferred using an automated line to a multihead filling machine.

The reformulation and filling are carried out in an enclosed and automated system. Dermal exposure to spills and drips of the concentrated solution is possible when containers of the imported product are connected and disconnected for transfer to the mixing tank. Cleaning and maintenance of the equipment may involve dermal exposure to the diluted final product.

Manufacturing workers who handle the ingredients of the final formulation in concentrated form are expected to wear overalls, head covering, safety glasses, safety boots and impervious gloves while handling chemicals. Filling operators who will only be exposed to the final consumer product will have access to similar personal protective equipment if needed.

Packaging
Up to 50 packaging workers will be involved in handling the notified chemical in the form of the consumer product. This will be contained in sealed aluminium cans and exposure is not expected except in the case of an accident involving rupture of a can.

Laboratory
Eight quality control and research and development staff will handle the notified chemical, for up to 6 hours per day, 100 days per year. The procedures could involve exposure to the concentrated solution while preparing trial batches, as well as to the diluted final product in quality control. The quantities handled would generally be small. Laboratory facilities such as fume hoods would be available when required. The staff will wear laboratory coats and safety glasses.

Retail
Retail activities involving the notified chemical will be widespread, but no exposure is expected as the notified chemical will be in the form of the diluted consumer product in sealed aluminium cans.

Hairdressing Industry
There is potential for both dermal and inhalational exposure to the notified chemical through use of products containing this chemical by commercial hairdressers. The frequency of exposure for hairdressing workers will be much greater than that for the general public.

A higher than normal incidence of respiratory complaints (lung disease and respiratory irritation and asthma) is found among workers in the hairdressing industry. The exact chemical cause cannot be determined in all cases, however the inhalation of aerosol droplets from hair sprays is believed to be a contributing factor (Dahl, 1990; Winder, 1993).

7. PUBLIC EXPOSURE

Public exposure to the notified chemical is expected to be widespread and repeated, as hair spray containing the notified chemical will be sold to the public. Public exposure will occur in hairdressing salons and in the home. Aerosol application should be undertaken in a well ventilated area, at a distance of 25-30 cm. The most likely routes of exposure will be dermal and inhalation, as the chemical will be applied to the hair in an aerosol product. Ocular exposure is also likely.

8. ENVIRONMENTAL EXPOSURE

Release

The most significant environmental exposure to the chemical will come from the cosmetic products being washed from the hair and skin. The bulk of this release is likely to be into the sewage system. Allowing for losses in the production stage and package residue, approximately 98% of the notified chemical, equivalent to approximately 885 kg, will be released into the sewage system in this manner.

Release to the environment during the reformulation process at the production site should be low and will only arise when equipment is cleaned. It is estimated that for each 10000 kg batch of the final product, approximately 50 kg (*ie.* 50 g of the notified chemical) will remain in the equipment. During the cleaning process this will be sent to the on-site wastewater treatment plant. Up to 90 batches per year will be prepared which will lead to a total of up to 4.5 kg of the chemical that will be discharged to the wastewater treatment plant.

Other releases will be limited to trace residues in empty packaging and clean-up of any spills. Residual chemical remaining in the import container after use is estimated to be 1% (*ie.* 9 kg annually). A further estimate of less than 2% of the cosmetic product will remain in the hair spray container after use. This would be equivalent to 3-6 mg of the notified chemical per container or 1.8 kg annually of Promois E118D being retained in the product packaging. The packaging and residue will be disposed to landfill or incineration.

Fate

All of the new chemical will eventually be released into the environment, and the majority could be expected to be discharged into sewerage systems. The chemical may either partition to sediment or stay in the aqueous compartment. The very high water solubility of the salt and the low solubility suggest that it will partition to water. Level 1 Mackay calculations for the dissociated AMPD moiety were performed using ASTER (Mackay, 1973; US Environment Protection Authority, 1998) and indicated that approximately 99.9% will partition to water. For the dissociated isostearoyl moiety, ASTER calculations indicated that approximately 33% would partition to water with the remainder partitioning to soil and sediment.

Any chemical that binds to the sludge during the waste treatment process would be disposed of through landfill. Once in the landfill sites (either from sludge or residue in the containers) movement of the chemical by leaching is expected because of its mobility due to its high water solubility. Residues that persist after sewage treatment will enter marine or freshwater environments in solution (from city and country wastewater treatment systems, respectively). The concentrations are expected to be very low because of the high dilution rates in the release processes and low volume of usage. Predicted Environmental Concentration (PEC) calculations were provided by the notifier and are discussed later.

In the event of accidental spillage of the chemical into waterways, the chemical is expected to disperse into the water. If the chemical is spilt on land, either during usage or transport, it is expected that due to its high water solubility the chemical would quickly move into the waterways.

9. EVALUATION OF TOXICOLOGICAL DATA

As the notification of Promois E-118D is a limited notification, toxicological data is not required as part of the notification package. Accordingly, no toxicological studies of the notified chemical have been included. However, a Cosmetic Ingredient Review (CIR) (Cosmetic Ingredient Review, 1990) of the acute toxicity, repeat dose toxicity and genotoxicity of aminomethylpropanediol (AMPD), a major component of the notified chemical, has been supplied. The reference also includes a review of the toxicity of the closely related chemical aminomethylpropanol (AMP).

AMPD was used in buffered form in the studies which are reported, and so the reported toxicity is appropriate for comparison with the AMPD cation in the notified chemical. The notified chemical contains 15 % (w/w) AMPD cation, and the imported solution, Promois E-118D, therefore contains 3.7 % (w/v) AMPD. The finished cosmetic formulations contain a maximum of 0.1 % notified chemical, or 0.015 % AMPD derived from the notified chemical.

The notified chemical is a salt containing the cation of AMPD and the anion of isostearoyl hydrolysed collagen. The naturally occurring amino acids and fatty acids of the anion are not

expected to be toxic according to the notifier. The triethanolamine salt of this group of anions is currently listed on AICS (CAS number 106232-91-1).

9.1 Acute Toxicity

Summary of the acute toxicity of AMPD

For the inhalation toxicity, irritation and sensitisation studies, cosmetic formulations containing various concentrations of AMPD were used. The concentrations of AMPD tested are indicated in the table below.

Test	*Species*	*Outcome*
acute oral toxicity	mouse (deer)	LD_{50} = 140 mg/kg
	mouse (albino)	LD_{50} > 5000 mg/kg
acute dermal toxicity		no data available
acute inhalation toxicity	rat (Sprague Dawley)	LD_{50} > 1 mg/L (0.50 %)
skin irritation	rabbit	slight irritant (0.4-0.715 %)
	human	not irritant (0.073-0.5 %))
eye irritation	rabbit	moderate irritant (0.4-0.715 %)
skin sensitisation	human	not sensitising (0.073-0.5 %)

9.2 Repeated Dose Toxicity

No repeat dose oral toxicity study on the notified chemical was provided. A summary of a 13 week inhalation toxicity study of aerosolised hair spray formulations containing AMPD in female rats and female Syrian golden hamsters was provided in the CIR (Cosmetic Ingredient Review, 1990) included in the notification package. For two formulations containing 0.135 % AMPD, exposure of 16 animals of each species to up to 100 mg/m^3 resulted in no deaths or macroscopic or microscopic findings that related to the treatment.

9.3 Genotoxicity

No genotoxicity studies of the notified chemical were provided, as these are not required for a limited notification. The CIR (Cosmetic Ingredient Review, 1990) included the results of a *Salmonella typhimurium* mutagenicity test for AMPD in TA1538, TA1537, TA100 and TA98 at concentrations of 0, 100, 333, 1000, 3330 and 5000 µg/plate. AMPD was found to not be mutagenic with and without metabolic activation under the conditions of the test.

9.4 Overall Assessment of Toxicological Data

The notified chemical is an ionic compound and the toxicological properties of the anion and cation can be considered separately. The anion is an undefined mixture of compounds of amino acids (mainly proline) and isostearic acid, derived from reaction of isostearic acid or isostearoyl chloride with hydrolysed collagen. In a CIR safety assessment of hydrolysed collagen for cosmetic use (Cosmetic Ingredient Review, 1985), it was found to be practically nontoxic, minimally or non-irritating and not a sensitiser. It was concluded that hydrolysed collagen is safe as a cosmetic ingredient in the present practices of use and concentration.

The fatty acid compounds of hydrolysed collagen are common cosmetic ingredients and the toxicity would not be expected to be greatly increased over that of hydrolysed collagen.

From limited toxicokinetic data (in the CIR summary (Cosmetic Ingredient Review, 1990)), AMPD was found to inhibit protein degradation and synthesis. Acute toxicity data were also limited, with oral LD_{50} values of 140 mg/kg and > 5000 mg/kg respectively reported for deer mice and albino mice. By analogy with the LD_{50} data for the related compound, aminomethylpropanol (AMP), AMPD most likely has low acute oral toxicity. No dermal toxicity data was provided. The inhalation toxicity could not satisfactorily be determined on the basis of the test which was reported, due to the low dose of AMPD used, but the hair spray containing 0.50 % AMPD was determined to be practically non toxic, with no toxic effects being observed after exposure of rats to an atmosphere containing 200 mg/L for 1 hour.

In skin irritation studies, cosmetic formulations containing AMPD were either non-irritating or slightly irritating to rabbit skin. In one clinical study, skin responses of uncertain significance were observed in approximately two thirds of the subjects. No skin sensitisation studies were conducted with AMPD in experimental animals, however a guinea pig study with AMP was negative. In two skin sensitisation studies with human volunteers, cosmetic formulations containing 0.5 % and 0.073 % AMPD tested negative.

Cosmetic formulations containing AMPD (0.4-0.715 %) were moderate eye irritants in rabbits. Conjunctivitis and severe iritis were observed; in some animals the conjunctivitis was persistent, being observed on Day 4 but not at Day 7 after installation of the test material in one animal.

No treatment related adverse effects were observed in a 13 week inhalation study in rats and hamsters using two hair spray formulations containing AMPD. An Ames test with AMPD was negative.

The CIR assessment of AMPD as a cosmetic ingredient (Cosmetic Ingredient Review, 1990) concluded that at concentrations not exceeding 1 %, it is safe for use in cosmetics. In the current notification, the concentration of AMPD resulting from the presence of the notified chemical in the formulation is a maximum of 0.015 %, although it is not certain that the notified chemical will be the only source of AMPD in the formulation. The concentrated solution, Promois E-118D, is likely to be an eye irritant as the concentration of AMPD will be approximately 3.7 %.

Based on the available data, Promois E-118D should be classified as an eye irritant in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (National Occupational Health and Safety Commission, 1994a). Formulations containing Promois E-118D, where it is the only source of AMPD, and with a concentration of notified chemical of less than 0.1 %, would not be classified as eye irritants.

10. ASSESSMENT OF ENVIRONMENTAL EFFECTS

Since the chemical is being used in quantities less than 1 tonne, no toxicological information is required by the Act.

While no tests were submitted, ASTER (US Environment Protection Authority, 1998) calculations for the acute toxicity of the free isostearoyl acid moiety to Fathead minnow (*pimephales promelas*) provides a 96 h LC_{50} value of 2 mg/L. While this figure indicates the neutral form of the notified chemical is moderately toxic to fish, with only one result, no firm conclusions can be drawn with respect to fish or other aquatic species. Calculated results can be variable and should be used as a guide only.

Biodegradation/Bioaccumulation
The biodegradability was measured in accordance with the method of Japanese Industrial Standard K0102 17. Potassium permanganate is used as an oxidising agent for the determination of organic compounds in wastewater in a relatively simple procedure that is disadvantaged because substances such as amino acids, ketones or saturated carboxylic acids are not or only partially oxidised. The Chemical Oxygen Demand (COD) measured by this method is referred to as COD_{Mn}. More accurate COD values can be obtained by oxidation with potassium dichromate in acidic solution (Rump, 1988). The sample was mixed with activated sludge in concentration of 500 ppm COD_{Mn} of the sample per 150 ppm of activated sludge. After a 24 hour incubation, Promois E118D was biodegraded 79.4% as determined by the decrease in COD_{Mn} rate. For comparison, the ASTER calculations estimated a BOD half-life of 2-16 days.

The level of biodegradability would suggest that there is little potential for bioaccumulation. ASTER calculations on the dissociated free acid and free base forms for the bioaccumulation factor in fish (fathead minnow) provide an estimate of 719 for the isostearoyl moiety and 1 for the AMPD moiety. The value for the isostearoyl moiety would suggest potential for bioaccumulation. However, since the ASTER program did not give a water solubility value for this salt, these values should be used with caution. Hence, the reported high solubility, low level exposure and widespread release of the notified chemical should limit the bioaccumulation potential.

11. ASSESSMENT OF ENVIRONMENTAL HAZARD

PEC Calculation

The notifier provided the following Predicted Environmental Concentration (PEC) values. The PEC has been calculated using a worst case scenario where all material is discharged during product formulation to wastewater in one city. The formulation plant in Sydney contains a 30000 L averaging tank with a capacity of 10000 – 20000 L/hour. Assuming release of a 10000 kg batch containing 50 g of Promois E118D to the sewer in one day (*ie.* 50 g of Promois E118D over 8 hours), and a dilution of 1:50 in the metropolitan sewer system, the PEC is estimated to be 0.0125 mg/L or 12.5 ppb (50 g/8 h × 10000 L/h × 50).

The most significant environmental exposure would be from the release of the chemical in the sewerage system after washing from the body after use. The PEC has also been calculated for release to the environment for each use (see Table below), based on the assumption that no removal of the chemical through adsorption to material in sewage treatment plant occurs.

Calculation Factor	Metropolitan area	Rural area
Product concentration of Promois E118D	0.1%	0.1%
Mass of hair spray per use[a]	5 g	5 g
Promois E118D per use	5 mg	5 mg
Promois E118D adhering to hair[b]	2.5 mg	2.5 mg
Average water usage in shower	60 L	60 L
Dilution ratio in sewer	1:10	1:2
Dilution ratio in sewage treatment plant	1:10	1:2
Dilution ratio in receiving waters	1:10	1:10
PEC	0.00004 mg/L (0.04 ppb)	0.001 mg/L (1 ppb)

[a] Volume of hair spray per use ~ 5 mL = 5 g (assuming 1 g/mL)

[b] The remaining hair spray will settle on clothes and the immediate area surrounding its use and will eventually be washed into the sewage system after cleaning.

The calculations show that the exposure levels of the chemical into the environment are unlikely to cause any significant effect. At higher release rates or lower achieved dilutions, there is still unlikely to be any significant effect on these species, since the concentration of the chemical would still be low.

A PEC value for the end use of the product in a dispersive release across the continent was also calculated from the data provided by the notifier. The following assumptions have been made:

1. All release is to sewer, where no degradation/hydrolysis occurs.

2. Sewer output per day is 2,700 ML, based on an Australian population of 18 million, and a daily per capita water usage volume of 150 L.

3. 98% of the total import volume (900 kg) is released over 365 days of the year, giving a daily release of the notified chemical of 2.4 kg.

Using these assumptions, a continental PEC due to end use, prior to release to receiving waters, is 0.9 µg/L. This is several orders of magnitude below the calculated LC_{50} = 2 mg/L of the free acid for Fathead minnow provided by ASTER.

Both local and continental predicted environmental concentrations support the conclusion of a low hazard.

Given the above, environmental exposure and the overall environmental hazard of the notified chemical is expected to be low.

12. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY EFFECTS

The notified chemical is predicted to have low acute toxicity, but it is a slight skin irritant and a moderate eye irritant in the concentrated form on the basis of the concentration of AMPD of 3.7 % (w/v) in the solution. The eye effects caused by AMPD were found to be slightly persistent. Therefore, on the available data, the notified chemical is a hazardous substance, according to the NOHSC *Approved Criteria for Classifying Hazardous Substances* (National Occupational Health and Safety Commission, 1994a), with the risk phrase R36, 'Irritating to eyes', applied.

Occupational Health and Safety

The notified chemical will be used in the workplace in the form of the imported concentrated solution containing 25 % (w/v) notified chemical, and in the form of the finished product, containing less than 0.1 % (w/v) notified chemical. The concentrated solution will be handled by workers involved in reformulation to produce the consumer product.

The equipment used for reformulation of the notified chemical to produce the finished product is enclosed and automated, so, due to the overall low toxicity of the notified chemical, the risk of adverse health effects resulting from exposure to the chemical during these processes is low. However, dermal exposure may occur during connection and disconnection of containers of the concentrated solution and appropriate personal protective equipment to avoid skin and eye contact should be worn. Laboratory workers involved in formulation trials may also come into contact with the concentrated solution, and suitable laboratory facilities and protective clothing should be used.

Industrial workers who come into contact with only the finished consumer product, other than in aerosol form, would be expected to be at negligible risk from the notified chemical as the concentration of AMPD resulting from the presence of the notified chemical in the formulation is a maximum of 0.015 % (w/v).

Occupational use of the finished products in the hairdressing industry may result in inhalational exposure to the notified chemical; inhalation of hair spray droplets is believed to be a contributing factor in producing a higher than normal incidence of respiratory complaints in these workers. Hair dressing industry workers would be expected to have much more frequent exposure than members of the general public using the same formulation.

Employers in the hairdressing industry should take precautions to minimise inhalation of spray products, e.g. by providing adequate ventilation for workers and the public. The relevant State or Territory industry guidelines or codes of practice should be observed.

Public Health

There will be widespread significant and repeated public contact with the notified chemical when it is incorporated in hair care products. The low (predicted) acute toxicological hazard associated with this chemical and the low concentration (< 0.1 %) to be used in products should lead to a low risk of adverse effects in members of the public using hair care products containing the notified chemical.

Based on the toxicity profile and use pattern of the notified chemical, it is considered that the notified polymer will not pose a significant hazard to public health.

13. RECOMMENDATIONS

To minimise occupational exposure to Promois E-118D (in concentrate form) the following guidelines and precautions should be observed:

- Safety goggles should be selected and fitted in accordance with Australian Standard (AS) 1336 (Standards Australia, 1994) to comply with Australian/New Zealand Standard (AS/NZS) 1337 (Standards Australia/Standards New Zealand, 1992);
- Industrial clothing should conform to the specifications detailed in AS 2919 (Standards Australia, 1987) and AS 3765.2 (Standards Australia, 1990);
- Impermeable gloves should conform to AS/NZS 2161.2 (Standards Australia/Standards New Zealand, 1998);
- All occupational footwear should conform to AS/NZS 2210 (Standards Australia/Standards New Zealand, 1994);
- Spillage of the notified chemical should be avoided. Spillages should be cleaned up promptly with absorbents which should be put into containers for disposal;
- Good personal hygiene should be practised to minimise the potential for ingestion;
- A copy of the MSDS should be easily accessible to employees.

14. MATERIAL SAFETY DATA SHEET

The MSDS for the notified chemical was provided in a format consistent with the *National Code of Practice for the Preparation of Material Safety Data Sheets* (National Occupational Health and Safety Commission, 1994b).

This MSDS was provided by the applicant as part of the notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of the applicant.

15. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the Act, secondary notification of the notified chemical shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. Secondary notification will also be required if Promois E118D is used in cosmetic formulations at concentrations greater than 0.1 %; if the import volume of notified chemical exceeds one tonne, or if the notified chemical is to be used in products other than hair spray.

16. REFERENCES

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