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

FULL PUBLIC REPORT

Ultrabatch 559

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**Director
NICNAS**

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FULL PUBLIC REPORT

Ultrabatch 559

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)

BASF Australia Ltd (ABN 62 008 437 867)

500 Princes Hwy

NOBLE PARK VIC 3174

NOTIFICATION CATEGORY

Limited-small volume: Polymer with NAMW < 1000 (1 tonne or less per year).

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication: Chemical name, molecular weight, molecular and structural formulae, spectral data and polymer constituents.

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)

Ultrabatch 559

MOLECULAR WEIGHT

Number Average Molecular Weight (Mn) < 500

Weight Average Molecular Weight (Mw) < 1000

SPECTRAL DATA

METHOD	Infrared (IR) spectroscopy
Remarks	A reference spectrum was provided.

METHODS OF DETECTION AND DETERMINATION

METHOD	IR spectroscopy
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3. COMPOSITION

DEGREE OF PURITY

89%

HAZARDOUS IMPURITIES/RESIDUAL MONOMERS

Chemical Name ethanol
CAS No. 64-17-5 *Weight %* 3
Hazardous Properties Highly flammable (NOHSC, 1999).

NON HAZARDOUS IMPURITIES/RESIDUAL MONOMERS (>1% by weight)

Non-hazardous components or components below the concentration at which they would be classified as hazardous were present at a total of 8%.

ADDITIVES/ADJUVANTS

None.

4. INTRODUCTION AND USE INFORMATION

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

The notified chemical will be imported as an additive (1%) in Ultradur HS which is in the form of pellets packed in 25 kg polyethylene bags.

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>
<i>Tonnes</i>	0.05	0.1	0.2	0.4	1.0

USE

Component of a moulding compound.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, transport and storage

PORT OF ENTRY

Melbourne.

IDENTITY OF RECIPIENTS

Notifier

TRANSPORTATION AND PACKAGING

Ultradur HS is transported by road in 25 kg PE bags.

5.2. Operation description

The imported pellets are manually transferred to the hopper of an injection moulding machine. The hot plastic is moulded to produce a housing for a steering angle sensor and automatically packed off.

5.3. Occupational exposure

Number and Category of Workers

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
Transport and storage	4 - 6	2 hours per day	3 days per year
Moulding machine operators	2 - 9		555 hours per year

Exposure Details

The plastic pellets are fed to the injection moulder using a vacuum loader and may be manually transferred to the hopper of a moulding machine and dermal exposure to the pellets may occur. Once in the moulding machine the process is contained and exposure to fumes is controlled by exhaust extraction. Moulded parts produced by the machine will be manually packaged. Dermal exposure to the plastic containing the notified polymer may occur at this stage.

Where repacking of the imported pellets is carried out, dermal exposure may be expected.

5.4. Release

RELEASE OF CHEMICAL AT SITE

The notified polymer is manufactured and formulated overseas; it is not expected to undergo any further reformulation within Australia. Therefore, there will be no environmental release at this stage, except in the case of transport accidents or spillages where it is expected that the notified polymer will be physically contained, collected and re-packaged for use if not contaminated, or else disposed of to landfill.

RELEASE OF CHEMICAL FROM USE

It is estimated that less than 0.04% (10 g per 25 kg bag) of the moulding compound will remain as residual in the import bag, upon emptying into injection moulding equipment's hoppers. Import bags, containing this residual, are expected to be disposed of to landfill. Any spilt notified polymer, within the moulding compound, is expected to be swept up and returned to the hopper for re-use, as is any notified polymer in equipment cleaning purges. Spilt material, that is unable to be re-used will be disposed of to landfill.

5.5. Disposal

Directly, as a result of residual in import bags or from spills, or indirectly, at the end of the moulded component's useful life, the entire quantity of imported notified polymer is expected to be eventually disposed of to landfill. In landfill, the notified polymer is expected to be inert and non-degradable, entrapped within the moulded compound. The notified polymer is expected to be immobile, and should not leave the landfill environment.

5.6. Public exposure

The public may come into contact with the moulded plastic parts containing the notified polymer at which time the polymer will be encapsulated and will not be bioavailable.

6. PHYSICAL AND CHEMICAL PROPERTIES

Some of the properties are for the notified polymer and some for the imported plastic as indicated below.

Appearance at 20°C and 101.3 kPa		Ultrabatch 559 is a clear, viscous liquid.
Melting Point/Freezing Point		220 - 230°C (Ultradur HS)
Density		1107 kg/m ³ (Ultrabatch 559); 1300 – 1800 kg/m ³ (Ultradur HS)
Vapour Pressure		0.095 kPa at 20°C (Ultrabatch 559)
METHOD	Determined in accordance with a dynamic method based on the Principle of Cottrell's Pump. BASF (2004)	
TEST FACILITY		
Water Solubility		Immiscible in water.
METHOD	TRbF 003: Assessment of Water Solubility. The test was performed in order to assess if a flammable liquid in case of fire can be extinguished by water. The liquid test substance was mixed with water in the ratios 20/80, 50/50 and 80/20. After shaking by hand for 2 minutes in a 10 mL test tube at an ambient temperature of 15°C, the mixture is allowed to stand for 24 hours. The test tubes are then checked for visible phase separation. The substance is considered not to be miscible with water by any ratio if one or more test tubes show a visible phase separation.	

This test only allows a very qualitative assessment, and as the polymer has a low

NAMW and contains many oxygen atoms, appreciable water solubility may be expected.
TEST FACILITY BASF (2004)

Hydrolysis as a Function of pH Not determined.

Remarks While containing hydrolysable functionality, the notified polymer is not expected to hydrolyse due in the environmental pH range of 4-9.

Partition Coefficient (n-octanol/water) Not applicable.

Remarks Given the relative insolubility of the notified polymer in water, this test is not applicable. The notified polymer is expected to mainly partition to the organic phase.

Adsorption/Desorption Not determined.

Remarks The notified polymer is expected to be inert and the notifier claims that it is not expected to adsorb to soil.

Dissociation Constant Not applicable.

Remarks The notified polymer does not contain dissociable functionality, nor is it soluble in water.

Particle Size Not determined.

Remarks The notified polymer is imported as a minor component of a plastic pellet.

Flash Point 61°C

METHOD DIN 51755

Remarks The test substance was filled into a crucible and heated slowly until the vapour has reached a sufficiently high concentration in the air and the mixture can be lit with a small gas flame.

TEST FACILITY BASF (2004)

Flammability Limits Upper: 32.8%
Lower: 3.9%
Upper Explosion Point: 45.5°C
Lower Explosion Point: 93.4°C

METHOD

Remarks Explosion limits are the lowest to highest concentration of burnable gas in a burnable gas/air mixture, where no independent flame spreads over the whole volume range after ignition.

TEST FACILITY BASF (2004)

Autoignition Temperature 335°C

METHOD DIN 51 794

TEST FACILITY BASF (2004)

Explosive Properties Not determined.

Remarks Not expected to be explosive.

Reactivity Stable under normal environmental conditions.

7. TOXICOLOGICAL INVESTIGATIONS

<i>Endpoint and Result</i>	<i>Assessment Conclusion</i>
Rat, acute oral LD50 > 2000 mg/kg bw	low toxicity
Rabbit, skin irritation	slightly irritating
Rabbit, eye irritation	slightly irritating

7.1. Acute toxicity – oral

TEST SUBSTANCE	Notified chemical
METHOD	OECD TG 423 Acute Oral Toxicity – Acute Toxic Class Method. EC Directive 2004/73/EEC B.1 tris Acute Oral Toxicity – Acute Toxic Class Method. U.S. Environmental Protection Agency, Health Effects Test Guidelines OPPTS 870.1100 Acute Oral Toxicity, December 2002.
Species/Strain	Rat/Wistar
Vehicle	0.5% sodium carboxymethylcellulose
Remarks - Method	None.

RESULTS

<i>Group</i>	<i>Number and Sex of Animals</i>	<i>Dose mg/kg bw</i>	<i>Mortality</i>
1	6 females	2000	None

LD50	> 2000 mg/kg bw
Signs of Toxicity	None.
Effects in Organs	None.
Remarks - Results	None.

CONCLUSION The notified chemical is of low toxicity via the oral route.

TEST FACILITY BASF (2005a)

7.2. Irritation – skin

TEST SUBSTANCE	Notified chemical
METHOD	OECD TG 404 Acute Dermal Irritation/Corrosion. EC Directive 2004/73/EEC B.4 Acute Toxicity (Skin Irritation). U.S. Environmental Protection Agency, Health Effects Test Guidelines OPPTS 870.2500 Acute Dermal Irritation, August 1998
Species/Strain	Rabbit/New Zealand White
Number of Animals	3
Vehicle	None.
Observation Period	72 hours
Type of Dressing	Semi-occlusive.
Remarks - Method	None.

RESULTS

<i>Lesion</i>	<i>Mean Score*</i> <i>Animal No.</i>			<i>Maximum Value</i>	<i>Maximum Duration of Any Effect</i>	<i>Maximum Value at End of Observation Period</i>
	1	2	3			
<i>Erythema/Eschar</i>	0.3	0	0	1	1 hour	0
<i>Oedema</i>	0	0	0	0	0	0

*Calculated on the basis of the scores at 24, 48, and 72 hours for EACH animal.

Remarks - Results	None.
CONCLUSION	The notified chemical is slightly irritating to the skin.
TEST FACILITY	BASF (2005b)
7.3. Irritation – eye	
TEST SUBSTANCE	Notified chemical
METHOD	OECD TG 405 Acute Eye Irritation/Corrosion. EC Directive 92/69/EEC B.5 Acute Toxicity (Eye Irritation). U.S. Environmental Protection Agency, Health Effects Test Guidelines OPPTS 870.2400 Acute Eye Irritation, August 1998
Species/Strain	Rabbit/New Zealand White
Number of Animals	3
Observation Period	72 hours
Remarks - Method	None.

RESULTS

<i>Lesion</i>	<i>Mean Score*</i>			<i>Maximum Value</i>	<i>Maximum Duration of Any Effect</i>	<i>Maximum Value at End of Observation Period</i>
	1	2	3			
<i>Conjunctiva: redness</i>	1	1	1	3	48 hours	0
<i>Conjunctiva: chemosis</i>	0	0	0	1	1 hour	0
<i>Conjunctiva: discharge</i>	0	0	0	2	1 hour	0
<i>Corneal opacity</i>	0	0	0	0		0
<i>Iridial inflammation</i>	0	0	0	0		0

*Calculated on the basis of the scores at 24, 48, and 72 hours for EACH animal.

Remarks - Results	The maximum value of 3 for conjunctival redness was observed at 1 hour post-instillation.
CONCLUSION	The notified chemical is slightly irritating to the eye.
TEST FACILITY	BASF (2005c)

8. ENVIRONMENT

8.1. Environmental fate

No environmental fate data were submitted.

8.2. Ecotoxicological investigations

No ecotoxicity data were submitted.

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

The notified polymer is manufactured overseas and is imported in 25 kg polyethylene bags as a minor component in a plastic moulding compound, from which it will not be isolated. On arrival in Australia, the notified polymer will be transported to various injection moulding facilities where it will be emptied from the import bags into the injection moulding equipment. The notified polymer will then undergo injection moulding to form automobile components. Any notified polymer in purged material from equipment cleaning is expected to be recycled in the moulding process.

At the end of the useful life of the automobile, the components containing the notified polymer are expected to be disposed of to landfill, where it is expected that the notified polymer will remain entrapped within the moulded compound and be inert and stable. Release to the aquatic environment is not expected at any stage in the life cycle of the notified polymer.

9.1.2. Environment – effects assessment

No environmental fate or ecotoxicity data were provided by the notifier. The notified polymer is expected to be inert and non-degradable. Given the expected low solubility in water, the notified polymer is not expected to be bioavailable, and therefore, should not bioaccumulate.

9.1.3. Environment – risk characterisation

A low potential for environmental release of the notified polymer is expected, with most wastes generated being either recycled or landfilled. Within the landfill environment, the notified polymer is expected to remain stable and immobile, entrapped within the moulded compound. Given the lack of release to the aquatic environment, a PEC is not able to be calculated. In conclusion, the risk to the environment is expected to be low if the chemical is used in the manner and levels indicated by the notifier.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

A low level of occupational exposure is primarily determined by the low percentage (1%) of notified polymer in the imported plastic pellets. In this form the polymer is also encapsulated to further reduce the opportunity for exposure. In addition, the pellets are handled briefly before being manually added to the hopper of a moulding machine which is an enclosed system. Following moulding the resultant articles are handled for packing and may further be handled by end users. However, the notified polymer is not expected to be bioavailable and exposure is therefore not expected.

9.2.2. Public health – exposure assessment

The public may come in contact with the moulded articles in or on automobiles. However, the notified polymer is not expected to be bioavailable and exposure is therefore not expected.

9.2.3. Human health – effects assessment

The notified chemical was of low acute oral toxicity in rats (LD50 > 2000 mg/kg bw) and was a slight skin and eye irritant in rabbits.

Based on the available data, the notified chemical is [not classified](#) as a hazardous substance in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC 2004).

9.2.4. Occupational health and safety – risk characterisation

Based on the low concentration of the notified polymer in the imported plastic in which it is encapsulated, the limited exposure and the containment of the injection moulding machinery, the risk to workers involved in transport, storage, use or disposal of the notified polymer is expected to be low.

9.2.5. Public health – risk characterisation

The public is only likely to be exposed to the notified polymer when it is encapsulated in moulded automobile parts and it is at a low concentration and is not bioavailable. Therefore the public health risk is low.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.1. Hazard classification

Based on the available data the notified chemical is not classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances*.

10.2. Environmental risk assessment

The chemical is not considered to pose a risk to the environment based on its reported use pattern.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

10.3.2. Public health

There is Negligible Concern to public health when used as described.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of the notified polymer [and a product containing 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.

11.2. Label

The label for a [product containing the notified chemical](#) provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC, 1994). The accuracy of the information on the label remains the responsibility of the applicant.

12. RECOMMENDATIONS

CONTROL MEASURES
Occupational Health and Safety

- A copy of the MSDS should be easily accessible to employees.
- If products and mixtures containing the notified chemical 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.

Disposal

- The notified polymer should be disposed of to landfill.

Emergency procedures

- Spills or accidental release of the notified chemical should be handled by physical containment, collection and subsequent recycling or disposal to landfill.

12.1. 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(2) of the Act:
- if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

No additional secondary notification conditions are stipulated.

13. BIBLIOGRAPHY

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