File No: LTD/1242

March 2006

# NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

## **FULL PUBLIC REPORT**

## **Component of Sudan Marker BS**

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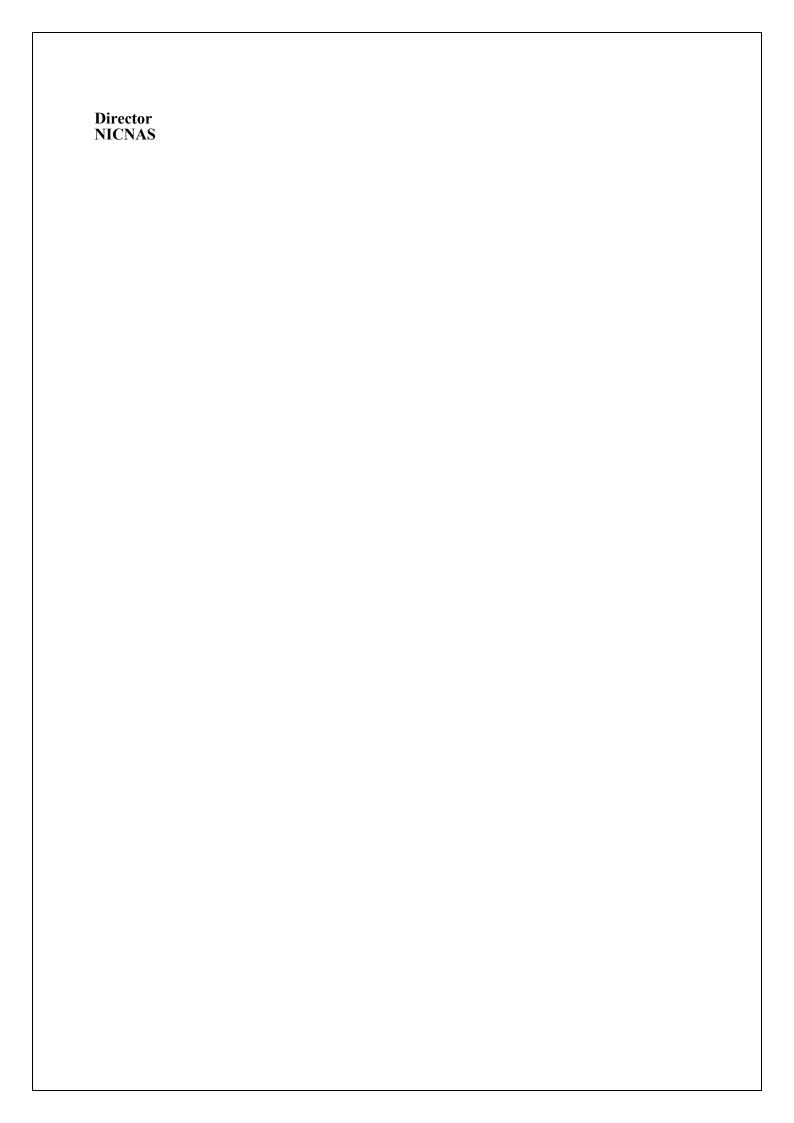
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Street Address: 334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.

Postal Address: GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.

TEL: +61 2 8577 8800 FAX +61 2 8577 8888 Website: www.nicnas.gov.au



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## **FULL PUBLIC REPORT**

## Component of Sudan Marker BS

#### 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: Chemical other than polymer, (1 tonne or less per year).

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication: Chemical identity, import volume

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)

Sudan® Marker BS

SPECTRAL DATA

METHOD Infrared (IR), <sup>13</sup>C Nuclear Magnetic Resonance (NMR) and ultraviolet-visible (UV-Vis)

spectroscopy.

Remarks Reference spectra were provided.

TEST FACILITY BASF (2005a)

METHODS OF DETECTION AND DETERMINATION

METHOD IR, NMR, UV-Vis spectroscopy; HPLC and Ion chromatography.

TEST FACILITY BASF (2005a)

## 3. COMPOSITION

DEGREE OF PURITY

>99%

HAZARDOUS IMPURITIES/RESIDUAL MONOMERS

None

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

None

#### 4. INTRODUCTION AND USE INFORMATION

Mode of Introduction of Notified Chemical (100%) Over Next 5 Years The notified chemical will be imported in 170 L drums via sea.

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

| Year   | 1   | 2   | 3   | 4   | 5   |
|--------|-----|-----|-----|-----|-----|
| Tonnes | < 1 | < 1 | < 1 | < 1 | < 1 |

USE

Colourant marker in the petroleum industry.

#### 5. PROCESS AND RELEASE INFORMATION

## 5.1. Distribution, transport and storage

PORT OF ENTRY

All major Australian ports.

**IDENTITY OF RECIPIENTS** 

Notifier

#### TRANSPORTATION AND PACKAGING

Transportation is in 170 L drums via road to the customer's storage facility or refineries. The number of reformulation/blending sites is estimated to be 14. It is anticipated that there would be up to 4 deliveries (maximum 4 drums per delivery) to each of the 14 sites per year.

## 5.2. Operation description

The notified chemical will be imported as a 2.5% solution in solvent, naphtha (petroleum), heavy aromatic to a gasoline blending site. A sparge is used to transfer the notified chemical into a blend tank where it is mixed with gasoline and other mult-purpose additives. The finished gasoline, typically containing a maximum of 1.25 mg/L notified chemical, is pumped into road tankers for distribution to distributors, retail outlets and industrial users. At service stations, the gasoline will be transferred to underground tanks.

## 5.3. Occupational exposure

Number and Category of Workers

| Category of Worker         | Number  | Exposure Duration       | Exposure Frequency   |
|----------------------------|---------|-------------------------|----------------------|
| Transport and storage      | 30 - 60 | 2 hrs per quarter       | 4 times per year     |
| Blending Operators         | 20 - 30 | 20 mins per drum        | 340 minutes per year |
| Delivery Drivers           | 100 –   | 8 hrs per day           | 5 days per week      |
| •                          | 120     |                         |                      |
| Service Station Attendants | >500    | 5 - 10 mins per<br>week | 52 weeks per year    |
| Motorist                   | >10,000 | 5 – 10 mins per<br>week |                      |

Exposure Details

Import, transport and distribution

During transport and storage, workers are unlikely to be exposed to the notified chemical except when packaging is accidentally breached.

#### Gasoline Formulation

Dermal and ocular exposure can occur during certain formulation processes e.g. connection/disconnection of transfer hoses. However, exposure to significant amounts of the notified chemical is limited due to the concentration of the notified chemical in the imported product (2.5%), engineering controls such as local exhaust ventilation, the likely low vapour pressure of the notified chemical and personal protective equipment worn by the workers.

#### End Use

Exposure of transport drivers and service station personnel to drips and spills may occur during the connection and disconnection of transfer hoses, automobile fuel fills and underground storage tank dips. Exposure is expected to be negligible due to the closed systems used and the low concentration of the notified chemical in gasoline (1.25 mg/L maximum depending on fuel type e.g. regular unleaded, premium unleaded, etc).

#### 5.4. Release

#### RELEASE OF CHEMICAL AT SITE

The notified chemical will be imported as a 2.5% solution in 170 L drums. Fugitive emissions of the notified chemical during transport are considered to be negligible due to expected low volatility. Thus there is little environmental release associated with this process.

The notified chemical is mixed together with other multi-purpose additives and gasoline, typically in batches of 10,000 to 100,000 L. There is minimal leakage of the product during this blending process as it is essentially a closed automated system. It is anticipated that a total loss of up to 1 kg of the notified chemical will occur annually due to spills during product transfer from drums to blending tanks. If incidental spillage occurs during normal operating procedures, it will be contained and soaked up with inert absorbent material (sand, soil or vermiculite) and placed in a sealable container for appropriate disposal. Waste material is disposed of in accordance with local, state and national regulations.

The maximum residual amount remaining in a 170 L drum is anticipated to be up to approximately 0.3%. A 170 L drum, therefore, would be expected to contain up to 500 mL of the notified chemical. Assuming the notifier imports approximately 38 tonnes per annum of sale product (equivalent to 950 kg per annum of notified chemical) this approximates to around 224 drums per annum. Based on a 500 mL residue per drum loss, this will equate to approximately 112 L per annum. Of the 112 L per annum loss, 2.5% is the notified chemical, therefore equating to 2.8 kg of notified chemical per annum. Alternatively, 0.3% of 1 tonne would correspond to 3 kg of the notified chemical per annum.

It is anticipated that all empty drums will not be cleaned at the customer's site, but sent to a licensed drum reprocessor for reconditioning/recycling of the drums. The residue will be flushed with a solvent wash and drained into a suitable container for disposal at an approved incineration facility. No residues or washings are expected to be drained to sewers or waterways.

## RELEASE OF CHEMICAL FROM USE

The end use of the new chemical is as a component of gasoline. Gasoline stocks would be stored in closed, underground tanks at retail outlets and would not be opened to the environment. When required, the gasoline would be pumped directly into fuel tanks where it would remain in an essentially closed system until consumed. During transfer of gasoline from storage tanks to fuel tanks at retail outlets, there is a potential for some small spillage to occur. This would mostly fall to the ground. Components of gasoline lost in such spillages would be expected to vaporise into the atmosphere or to be flushed away as spill residues. The fuel will evaporate with time leaving the residual chemical behind. The residual chemical is unlikely to undergo hydrolysis but will slowly degrade through the agency of abiotic and biotic process. The notifier indicates that such losses to the environment would be expected to be minimal.

Release of the notified chemical from its end-use in gasoline is not anticipated. When used as part of a fuel, the notifier indicates that all the notified chemical will be burnt, together with the gasoline, during the internal combustion process and would not be released to the environment.

## 5.5. Disposal

Spills of this product are expected to be cleaned up with absorbent material and disposed of in accordance with the recommendations provided in the MSDS. Empty import drums will be recycled/reconditioned and refilled with other products. It is expected the drums will be disposed to landfill once they reach the end of their useful life.

#### 5.6. Public exposure

It is expected that during import, transport, storage, mixing with petrol, and replenishment at service stations, exposure of the general public to the notified chemical will be low, except in the event of an accidental spill. Public exposure to the notified chemical may occur during refuelling of vehicles at petrol stations and filling of petrol containers for storage and use in domestic petrol-engined equipment. Exposure is likely to be by the dermal route, with the possibility of ocular and inadvertent oral exposure.

#### 6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa Homogeneous black powder.

Melting Point 173°C

METHOD EC Directive 92/69/EEC A.1 Melting/Freezing Temperature.

Remarks The melting temperature was measured by Differential Scanning Calorimetry.

TEST FACILITY BASF AG (2005b)

**Boiling Point** Not determined.

**Density** Not determined.

Vapour Pressure Not determined.

Remarks The notified chemical is expected to have low volatility due to its relatively high

molecular weight.

**Water Solubility** < 0.1 mg/L at 20°C

METHOD EC Directive 92/69/EEC A.6 Water Solubility.

Remarks The water solubility of the test substance was estimated to be < 7 mg/L based on

the preliminary testing of the test substance in water by stirring at 23°C for about 67 h. It was then determined by the column elution method but was less than the limit of determination. The water solubility of the test substance was determined at pH ~7 using the HPLC with UV/Vis detector. The calculation of the water

solubility was estimated to be 5.9 x 10<sup>-18</sup> mg/L (25°C) by the EPIWIN method.

TEST FACILITY BASF AG (2005b)

Hydrolysis as a Function of pH Not determined.

Remarks The hydrolysis of the notified chemical could not be determined because the water

solubility is < 0.1 mg/L

**Partition Coefficient (n-octanol/water)**  $\log Pow \text{ at } 25^{\circ}C \ge 2.9$ 

METHOD EC Directive 92/69/EEC A.8 Partition Coefficient.

Remarks 19.50 – 22.14 mg of the test item and 50 mL of 1-octanol were stirred at 30°C for

24, 48 and 72 hours. Afterwards the mixtures were conditioned at 20°C for 24 hours and then filtered. The content of the test item in the filtered solutions was analysed by means of HPLC and external calibration by dissolution in tetrahydrofuran (THF) and acetonitrile. The octanol solubility of the test substance was determined to be 73.9 mg/L at 20°C, and the Pow based on the ratio with the water solubility. The determination of log Pow was subsequently performed by

HPLC method to be >> 6.2 which is the value for the highest reference (DDT).

TEST FACILITY BASF AG (2005b)

#### Adsorption/Desorption

Not determined.

- screening test

METHOD OECD 121 Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage

Sludge using High Performance Liquid Chromatography

Remarks The HPLC method is not suitable to determine Koc of the notified chemical

because it could not be chromatographed under the prescribed conditions. The

calculation of the log Koc was estimated to be 13.0 by the EPIWIN method.

TEST FACILITY BASF AG (2005b)

#### **Dissociation Constant**

Not determined.

METHOD OECD TG 112 Dissociation Constants in Water.

Remarks The Dissociation Constant of the notified chemical could not be determined

because of the low water solubility (< 0.1 mg/L). The notified chemical does contain potentially cationic groups but these are unlikely to be strongly basic due to steric hindrance and dissociation is unlikely in the environmental pH range of 4-

9.

TEST FACILITY BASF AG (2005b)

#### Particle Size

METHOD OECD TG 110 Particle Size Distribution/Fibre Length and Diameter Distributions.

| Range (µm) | Mass (%) |
|------------|----------|
| < 10       | 11.37    |
| < 30.2     | 28.45    |
| < 80.26    | 60.09    |
| <120.23    | 94.01    |
| < 181.97   | 100      |

Remarks Determination of the particle size distribution by laser diffraction with evaluation

according to Fraunhofer.

TEST FACILITY BASF AG (2005b)

Flash Point Not determined.

Remarks Not applicable for a solid.

Flammability Limits Not highly flammable.

METHOD EC Directive 92/69/EEC A.10 Flammability (Solids).

Remarks Not considered to be highly flammable.

TEST FACILITY BASF AG (2005c)

## **Autoignition Temperature**None up to melting point.

METHOD 92/69/EEC A.16 Relative Self-Ignition Temperature for Solids.

Remarks Up to the melting point no self-heating was registered.

TEST FACILITY BASF AG (2005c)

## **Explosive Properties** Not determined.

METHOD EC Directive 92/69/EEC A.14 Explosive Properties.

Remarks This has not been carried out because the exothermic decomposition energy,

determined by a DSC, is less than 500 J/g (UN Recommendations on the transport

of dangerous goods, Manual of tests and criteria, Appendix 6).

TEST FACILITY BASF AG (2005c)

Reactivity Not determined.

Remarks A reactivity test has not been carried out because the chemical structure of the

substance does not contain oxygen, chlorine or nitrogen in higher oxidation states (N>0, Cl>-1, O>-2). The notified chemical is stable under normal environmental

conditions.

#### 7. TOXICOLOGICAL INVESTIGATIONS

| Endpoint and Result                       | Assessment Conclusion |
|---|-----------------------|
| Rat, acute oral LD50 >2000 mg/kg bw       | low toxicity          |
| Genotoxicity – bacterial reverse mutation | non mutagenic         |
| Genotoxicity – in vitro micronucleus test | non genotoxic         |

## 7.1. Acute toxicity – oral

TEST SUBSTANCE Notified chemical.

METHOD OECD TG 423 Acute Oral Toxicity – Acute Toxic Class Method.

EC Directive 92/69/EEC B.1tris Acute Oral Toxicity – Acute Toxic Class

Method.

OPPTS 870.1100 – Acute Oral Toxicity

Species/Strain Rat/Wistar/HanRcc:WIST(SPF)

Vehicle Olive oil.

Remarks - Method No significant protocol deviations.

#### RESULTS

| Group | Number and Sex | Dose     | Mortality |
|-------|----------------|----------|-----------|
|       | of Animals     | mg/kg bw |           |
| 1     | 3F             | 2000     | 0         |
| 2     | 3F             | 2000     | 0         |

LD50 >2000 mg/kg bw

Signs of Toxicity None.

Effects in Organs No abnormalities observed.

Remarks - Results The mean body weights increased throughout the study period.

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

TEST FACILITY BASF (2005d)

## 7.2. Genotoxicity – bacteria

TEST SUBSTANCE Notified chemical.

METHOD OECD TG 471 Bacterial Reverse Mutation Test.

EC Directive 2000/32/EC B.13/14 Mutagenicity – Reverse Mutation Test

using Bacteria.

EPA/OPPTS 870.5100

Plate incorporation procedure/Pre incubation procedure

Species/Strain S. typhimurium: TA1535, TA1537, TA98, TA100.

E. coli: WP2 uvrA.

Metabolic Activation System Cofactor-supplemented postmitochondrial fraction (S9) obtained from

livers of rats treated with Aroclor 1254.

Concentration Range in

a) With metabolic activation:
 b) Without metabolic activation:
 23 - 5750 μg/plate
 23 - 5750 μg/plate

Main Test Vehicle

Acetone

Remarks - Method No significant protocol deviations.

| Metabolic  | Test Substance Concentration (µg/plate) Resulting in: |                 |               |                  |
|------------|---|-----------------|---------------|------------------|
| Activation | Cytotoxicity in                                       | Cytotoxicity in | Precipitation | Genotoxic Effect |
|            | Preliminary Test                                      | Main Test       | -             |                  |
| Absent     | ·   |                 |               |                  |
| Test 1     | None  | None            | 115           | None             |
| Test 2     |   |                 |               |                  |
| Present    |   |                 |               |                  |
| Test 1     | None  | None            | 115           | None             |
| Test 2     |   |                 |               |                  |

controls demonstrated the sensitivity of the test.

CONCLUSION The notified chemical was not mutagenic to bacteria under the conditions

of the test.

TEST FACILITY BASF (2005e)

## 7.9. Genotoxicity – in vitro

TEST SUBSTANCE Notified chemical.

METHOD Draft OECD TG 487 In vitro Test. Dated June 14, 2004

Kalweit et al. (1999)

Species/Strain Chinese Hamster

Cell Type/Cell Line V79

Metabolic Activation System Cofactor-supplemented postmitochondrial fraction (S9) obtained from

livers of rats treated with Aroclor 1254

Vehicle Acetone

Remarks - Method No significant protocol deviations.

| Metabolic<br>Activation | Test Substance Concentration (µg/mL) | Exposure<br>Period | Harvest<br>Time |
|-------------------------|--------------------------------------|--------------------|-----------------|
| Absent                  |                                      |                    |                 |
| Test 1                  | 0, 187.5, 375, 750, 1500, 3000       | 4hrs               | 24 hrs          |
| Test 2                  | 0, 187.5, 375, 750, 1500, 3000       | 24hrs              | 24 hrs          |
| Present                 |                                      |                    |                 |
| Test 1                  | 0, 187.5, 375, 750, 1500, 3000       | 4hrs               | 24 hrs          |
| Test 2                  | 0, 187.5, 375, 750, 1500, 3000       | 4 hrs              | 24 hrs          |

## RESULTS

| Metabolic  | Test Substance Concentration (µg/mL) Resulting in: |                              |                        |                  |  |
|------------|--|------------------------------|------------------------|------------------|--|
| Activation | Cytotoxicity in<br>Preliminary Test                | Cytotoxicity in<br>Main Test | Precipitation          | Genotoxic Effect |  |
| Absent     |  |                              |                        |                  |  |
| Test 1     |  | None                         | $\geq$ 187.5 (approx.) | None             |  |
| Test 2     |  | "                            | "                      | "                |  |
| Present    |  |                              |                        |                  |  |
| Test 1     |  | "                            | "                      | "                |  |
| Test 2     |  | "                            | "                      | "                |  |

controls demonstrated the sensitivity of the test.

CONCLUSION The notified chemical was not clastogenic to V79 cells treated in vitro

under the conditions of the test.

#### 8. ENVIRONMENT

## 8.1. Environmental fate

#### 8.1.1. Ready biodegradability

TEST SUBSTANCE Notified chemical

METHOD OECD TG 301 B Ready Biodegradability: CO<sub>2</sub> Evolution Test.

Inoculum Municipal activated sludge from the waste water treatment plant of the

community Lambsheim. The activated sludge was collected at 06 June 2005 and aerated until use. About 2000 mL of the sludge suspension were washed with tap water, sieved by a finely woven mesh (mesh size about 0.8 mm) and pre-aerated for about 24 hours and then added to the test vessels to obtain a sludge concentration of 30 mg/L dry substance. The activated sludge in the test vessels was pre-aerated once again for

about 24 hours (Total aeration time: about 48 hours)

Exposure Period 28 days
Auxiliary Solvent None
Analytical Monitoring Conductivity

Remarks – Method Mixtures of the test substance, a defined inorganic medium and a non

pre-adapted inoculum were incubated and aerated at 22°C for 28 days. The conductivity shift of the absorption solution was used for calculating the CO<sub>2</sub> production. The TOC concentration of the test substance and the

reference (aniline) was 20 mg/L.

#### RESULTS

| Test sub          | ostance  | 1   | Aniline   |  |
|-------------------|--|---|---|--|
| Day               | % degradation  | Day   | % degradation   |  |
| 7                 | 2  | 7   | 50  |  |
| 14                | 2  | 14  | 72  |  |
| 21                | 2  | 21  | 82  |  |
| 28                | 2  | 28  | 87  |  |
| Remarks – Results | elimination was not<br>of the test substan<br>degradation of the r | performed. The result ce at the end of the  | n water and thus the DOC-s indicate that biodegradation exposure was < 10%. The tion control after 14 days was ting the test. |  |
| CONCLUSION        |  | chemical is considered to be not ready biodegradable, but is sted to be inhibitory to sewage micro-organisms. |   |  |

TEST FACILITY BASF (2005g)

## 8.1.2. Bioaccumulation

Based on the logKow of 2.9, the notified chemical has the potential to bioaccumulate but aquatic exposure will be very low from the proposed use.

#### 8.2. Ecotoxicological investigations

No ecotoxicity data were submitted.

## 9. RISK ASSESSMENT

#### 9.1. Environment

## 9.1.1. Environment – exposure assessment

No release of the notified polymer is expected at the customer sites during transport and blending, except in the event of an accidental spill. Any spills occurring during blending operations are to be contained and soaked up with earth or sand before being transported off-site to an approved facility for appropriate disposal. Release of the notified chemical to the atmosphere is unlikely to occur as the relative vapour pressure is expected to be low due to its relatively high molecular weight. Small amounts of the notified chemical that are disposed of to landfill, from drum residues or spill clean-ups, will be expected to be bound to the soils and sediments and be unlikely to enter the water compartment due to its low solubility. In landfill, the notified chemical is not expected to hydrolyse but will slowly biodegrade via biotic and abiotic processes.

No data on the effect on fuel emissions appear to be available. The intended use pattern of the notified chemical in automotive fuel is not expected to result in a significant release to the environment as the notifier claims that the notified chemical will be completely destroyed by combustion within the petrol engine, resulting in oxides of carbon and nitrogen. The notifier indicates that as both the notified chemical and the constituents of the petrol of which it will be a minute part, "are made up of hydrocarbon and oxygen", the notified chemical is not expected to survive the temperatures at which the fuel is exploded within the internal combustion engine. However, no data were provided to support the claimed minimal effect on emissions.

#### 9.1.2. Environment – effects assessment

Due to its low water solubility and limited exposure to the aquatic environment, the notified chemical is unlikely to pose an environmental risk to aquatic organisms.

#### 9.1.3. Environment – risk characterisation

Limited environmental release of the notified chemical is anticipated except in the case of accidental spills. The majority of the notified chemical will be burnt in engines along with the fuel. Any material lost as a result of spills, or remaining as residues in containers, is expected to be recovered and disposed of by incineration or by landfill. Given the low water solubility, likely low release to water and the low usage volume, there is unlikely to be an environmental risk in the aquatic compartment under the proposed use pattern.

Given the above, the overall environmental risk is expected to be low.

#### 9.2. Human health

#### 9.2.1. Occupational health and safety – exposure assessment

As the notified chemical is not volatile, spills and splashes resulting in dermal and/or ocular contact are the most likely exposure routes. Exposure is most likely to occur during formulation processes such as the connection/disconnection of transfer hoses. Overall, worker exposure to the notified chemical is expected to be low due to enclosure, the high level of engineering controls such as local exhaust ventilation, and the low concentrations of the notified chemical in the imported formulation (2.5%) and in gasoline (maximum of 1.25 mg/L).

## 9.2.2. Public health – exposure assessment

Public exposure may occur if there is an accidental spill and/or release of either the fuel additive or the blended fuel. Public exposure to the notified chemical is most likely to occur during refueling of vehicles at petrol stations. Exposure is likely to be by the dermal route, with the possibility of ocular exposure but will be limited by the low concentration of the notified chemical in fuel.

## 9.2.3. Human health – effects assessment

The notified chemical was of low acute oral toxicity in rats (LD50 > 2000 mg/kg bw). In addition, it was found to be non-mutagenic in bacteria and non-clastogenic in Chinese Hamster V79 cells in vitro.

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

During import and transport of the notified chemical, worker exposure is unlikely except in the event of a spill. Exposure after a spill would be controlled by use of the recommended practices for spillage clean up outlined in the MSDS supplied by the notifier.

The notified chemical is likely to have a low vapour pressure and therefore the likelihood of inhalation exposure is considered to be low. The MSDS for the product containing the notified chemical lists various potential adverse effects, which can be attributed to other components of the product that are known hazardous substances. Personal protective equipment including chemical resistant gloves, and chemical goggles are recommended.

Before and particularly after blending, the concentration of the notified chemical in the petrol is low. Fuelling of vehicles usually occurs in the open air, and without the use of protective clothing. However, exposure occurs for a period of only a few minutes, and the concentration of the notified chemical in the petrol is low.

Due to its expected low toxicity, and engineering controls in place to prevent exposure to hazardous chemicals in the products in which it occurs, the risk to workers from the notified chemical is expected to be low.

#### 9.2.5. Public health – risk characterisation

The risk to public health is assessed as low due to the infrequency of exposure and the low concentration of the notified chemical in the fuel.

## 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 notified 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 in the intended manner.

## 11. MATERIAL SAFETY DATA SHEET

## 11.1. Material Safety Data Sheet

The MSDS of the notified chemical provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 2003). It is 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 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.

#### Environment

#### Disposal

The notified chemical should be disposed of by incineration.

## Emergency procedures

Spills/release of products containing the notified chemical should be handled by placing
an inert absorbent material (such as sand, soil or vermiculite) over the product. Material
is then to be collected and placed into a sealable labelled container for appropriate
disposal.

#### 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

BASF AG (2005a) Characterization of [Notified Chemical] for Official Notification. Study No. 05L00003. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier).

BASF AG (2005b) Physico-chemical properties of [Notified Chemical]. Study No. 05L00004. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier).

BASF AG (2005c) Evaluation of physical and chemical properties according to Directive 92/69/EC: Annex A.9-A.17 - [Notified Chemical]. Laboratory Study Code SIK-Nr. 05/0099. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier).

BASF AG (2005d) [Notified Chemical] – Acute oral toxicity study in rats. Laboratory Project Number 10A0007/051003. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier).

BASF AG (2005e) Salmonella typhimurium / Escherichia coli Reverse Mutation Assay (Standard Plate Test and Preincubation Test) with [Notified Chemical]. Laboratory Project Number 40M007/054004. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier).

BASF AG (2005f) In Vitro Micronucleus Assay with [Notified Chemical] in V79 Cells (Mixed Population Method). Laboratory Project Number 33M0007/054003. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier).

BASF AG (2005g) [Notified Chemical] - Determination of the Biodegradability in the CO2-Evolution Test. Laboratory Project Number 36G0007/053023. BASF Aktiengesellschaft, Ludwigshafen, Germany (unpublished report supplied by notifier)

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

NOHSC (2003) National Code of Practice for the Preparation of Material Safety Data Sheets, 2nd edn [NOHSC:2011(2003)]. National Occupational Health and Safety Commission, Canberra, Australian Government Publishing Service.

NOHSC (2004) Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]. National Occupational Health and Safety Commission, Canberra, AusInfo.