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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Chemical in EFKA-5071

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Director
NICNAS

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Ciba Specialty Chemicals Pty Ltd (ABN 97 005 061 469)
235 Settlement Road
Thomastown Vic 3074

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 Name
Other Names
CAS Number
Molecular Formula
Structural Formula
Molecular Weight
Spectral Data
Purity
Identity and % Weight of Hazardous Impurities
Identity and % Weight of Non-Hazardous Impurities
Import Volume
Identity of Customers

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
Variation to the schedule of data requirements is claimed as follows:
Melting Point
Boiling Point
Density
Vapour Pressure
Water Solubility
Hydrolysis as a Function of pH
Partition Coefficient
Adsorption/Desorption
Dissociation Constant
Particle Size
Flash Point
Flammability Limits
Autoignition Temperature
Explosive Properties

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
China
Korea
Japan

2. IDENTITY OF CHEMICAL

OTHER NAME(S)
K-008
Alkylol ammonium salt of a high molecular weight carboxylic acid

MARKETING NAME(S)
Chemical in EFKA®-5071

METHODS OF DETECTION AND DETERMINATION

METHOD IR Spectroscopy
REMARKS A reference spectrum was provided

3. COMPOSITION

DEGREE OF PURITY
>95%

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 by sea as part of the product EFKA®-5071(40-60% notified chemical).

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	<1	<1	<1	<1	<1

USE
The notified chemical will be used as a wetting and dispersing agent in solvent based automotive paints for use in crash repair shops.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, transport and storage

PORT OF ENTRY
Melbourne

IDENTITY OF MANUFACTURER/RECIPIENTS
Ciba Specialty Chemicals Pty Ltd
235 Settlement Road
Thomastown Vic 3074
The product containing the notified chemical will be stored at a site in Victoria before being distributes to a paint manufacturer in South Australia.

TRANSPORTATION AND PACKAGING
EFKA®-5071 containing the notified chemical (40-60%) will be imported by sea in 25 kg closed head drums. The containers will be transported by road to a storage site, and then supplied to an automotive paint manufacturer in South Australia without repackaging, for reformulation into a range of automotive paints (up to 0.15% notified chemical). The finished paints (<0.1% notified chemical) will be packaged in 1 L, 4 L and 20 L steel paint cans. The paints will be distributed to numerous (up to 10,000) automotive repair shops around Australia.

5.2. Operation description

The notified chemical will not be manufactured in Australia.

Reformulation

The 25 kg drums of liquid product containing the notified chemical (40-60%) will be transported by forklift or manually as required from the warehouse to the production area. At the blending plant the imported liquid product containing the notified chemical is transferred manually from the drum to the blending tank. This is typically achieved by manually opening the drum and measuring out the product containing the notified chemical. Quality control chemists will undertake sampling and analysis of the blended product (approximately 200 mL). The resultant paint is filtered by automated means prior to being dispensed into 1 L, 4 L and 20 L steel paint cans and pails using automated filling machine under exhaust ventilation. The resultant paint contains up to 0.15% of the notified chemical. Paint products containing the notified substance will be warehoused at the manufacturing site prior to distribution to customer sites.

All workers will wear PPE such as chemical resistant gloves, safety glasses, safety boots, coveralls and respiratory protection as required. Workers will have access to the Material Safety Data Sheet (MSDS).

End-User

At the smash repair sites (estimated to be up to 10,000), the paint will be mixed, stirred and thinned by addition of solvent, then placed in a spray gun. After this dilution the concentration of notified substance in the paint sprayed will be < 0.1%. The object to be primed with the paint will be sprayed then heat cured, resulting in the painted article.

The majority of these spray applications will occur in a spray booth. The level of ventilation present in the spray booth will vary between workshops. In smaller automotive refinish repair shops spray applications may occur outside of a spray booth.

5.3. Occupational exposure

Number and Category of Workers

Category of Worker	*Number*	*Exposure Duration*	*Exposure Frequency*
Transport drivers (Imported product)	1 – 4	30 – 60 mins/trip	4 days/year
Warehouse personnel (Imported product)	4 – 5	20 mins/load or unload	4 days/year
Transport driver (Reformulated paint)	1 – 3	20 – 60 mins/trip	4 days/year
Interstate transport drivers (Reformulated paint)	1 – 2	10 hr/trip	4 days/year
Warehouse personnel (Reformulated paint)	1 – 2	20 mins/load or unload	4 days/year
Store persons (Reformulated paint)	1 – 3	10 mins/week	12 weeks/year
Laboratory technicians (Reformulated paint)	2 – 3	30 mins/week	30 weeks/year
Reformulation Workers (Blending)	5 – 10	10 mins/week	30 weeks/year
Spray painters (automotive repair shops)	Up to 10,000	8 hr/day	5 days/week

Exposure Details

Transport and storage

Transport and warehousing workers may come into dermal and ocular contact with the notified chemical through accidental leaks and spillages.

Reformulation

Exposure to the notified chemical (40-60%) could occur during reformulation processes such as transfer and sample fillings. However, exposure will be minimised by engineering controls such as local exhaust ventilation (LEV) and the use of PPE in accordance with the MSDS. Inhalation exposure during formulation or filling of paint is unlikely as aerosols are not expected to be formed and exhaust ventilation systems are in place to control exposure to other components of the paints.

Spray painting
Spray painters may come into contact with the notified chemical at a concentration of up to 0.15% through dermal and ocular routes from direct contact with drips, spills and splashes during transfer of the paint formulation to the spraying equipment, manual paint application, and equipment cleaning and maintenance. Workers may also be exposed to the notified chemical (concentration up to 0.1%) by inhalation of paint aerosols containing the notified chemical during spray application. In the majority of car repair shops exposure is expected to be minimal as the spray paint is applied in a ventilated spray booth by workers using protective equipment. In car repair shops where spray booths are not used the level of exposure per application is expected to be greater, however, exposure will be minimised by spray application in a well ventilated area and the use of PPE in accordance with the MSDS. It is estimated that approximately 10000 spray-painters around Australia will be exposed to the notified chemical on a regular basis.

After application and once dried, the paint containing the notified chemical is cured into an inert matrix and the chemical is hence unavailable to exposure.

5.4. Release

RELEASE OF CHEMICAL AT SITE
The notified chemical is manufactured overseas and is imported as an aqueous solution in 25 kg drums. The drums may be stored prior to transport to reformulation facilities, where the notified chemical will be mixed with other ingredients to form the final paint products, supplied in 1, 4 and 20L steel cans. Release to the environment may arise from accidental spills and from the cleaning of reformulation equipment. It is expected that this release will be to landfill. Aquatic release is not expected by the notifier.

RELEASE OF CHEMICAL FROM USE
The final paint products will be thinned, applied to vehicles, and subsequently cured by baking. Overspray is expected to account for up to 30% of the total annual volume, and is expected to be entrapped, collected and disposed of to landfill. Residual notified chemical within containers is expected account for up to 2.5% of the total annual volume, and is expected to be disposed of to landfill. Notified chemical within rinsate from the cleaning of application equipment is expected to account for up to 5% of the total annual volume. It is expected that the rinsate will be captured and disposed of in an incinerator.

5.5. Disposal
Notified chemical that is applied to vehicles is expected to eventually be disposed of to landfill, or to metal reclamation facilities at the end of the vehicles life. In landfill, the notified chemical is expected to remain entrapped within the coating matrix. Notified chemical that is disposed of to metal reclamation facilities is expected to be thermally decomposed to form simple oxides of carbon and nitrogen and water.

5.6. Public exposure
The notified product is for industrial use only. The public will come into contact with surfaces (car surfaces, doors etc.) coated with the notified chemical. However, the notified chemical will be trapped within the coating and not bioavailable.

6. PHYSICAL AND CHEMICAL PROPERTIES

The notified chemical is introduced as an aqueous solution at a concentration of 40-60% (EFKA®-5071). The following physicochemical data relates to the product.

Appearance at 20°C and 101.3 kPa	Clear, slightly brownish liquid.
Melting Point/Freezing Point	Not determined.
Boiling Point	100°C at 101.3 kPa

Remarks Data taken from MSDS for the product, which contains the notified chemical. Study report not provided.

Density 1090 kg/m^3 at 20°C

Remarks Data taken from MSDS for the product, which contains the notified chemical. Study report not provided.

Vapour Pressure 2.3 kPa at 20°C

Remarks The notified chemical as introduced is not isolated from solution. The chemical has high molecular weight and is capable of being ionised. It is likely that the chemical will be of low volatility.

Viscosity 400 mPa.s (temperature not specified)

Remarks Data taken from MSDS for the product, which contains the notified chemical. Study report not provided.

Water Solubility The chemical is completely soluble in water.

Remarks No test result has been provided, but the notified chemical (up to 40% notified chemical) is introduced as an aqueous solution.

Hydrolysis as a Function of pH Not determined

Remarks The notified chemical contains functional groups which may undergo hydrolysis under extreme temperature and pH conditions. However, hydrolysis is not expected to occur within the environmental pH range of 4-9.

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

Remarks None.

Adsorption/Desorption Not determined.

Remarks Based on its structure, the notified chemical is expected to be relatively immobile in soil.

Dissociation Constant Not determined.

Remarks The notified chemical does not contain any functional groups that are expected to be dissociated in the environmental pH range of 4-9.

Particle Size Not applicable.

Remarks Notified chemical is a introduced in an aqueous solution.

Flash Point

Remarks Test not conducted. The notified chemical is imported only as an aqueous solution.

Flammability Limits

Remarks Test not conducted. The notified chemical is imported only as an aqueous solution.

Autoignition Temperature

Remarks Test not conducted. The notified chemical is imported only as an aqueous solution.

Explosive Properties

Remarks	Test not conducted. The notified chemical does not contain functional groups which may infer explosive properties.

Reactivity

Remarks	Stable under normal conditions of use. The notified chemical is marketed in an aqueous solution and is not expected to show oxidizing properties. Incompatible substances for this product are not known. There are no known conditions that are expected to contribute to the instability of this product. The decomposition products are not known but are likely to be oxides of carbon and some oxides of nitrogen.

7. TOXICOLOGICAL INVESTIGATIONS

No toxicity data were submitted.

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

Up to 5% of the total volume of notified chemical is expected to be disposed of by incineration, as rinsate from the cleaning of application equipment. Incinerated notified chemical is expected to be thermally decomposed to form simple carbon and nitrogen oxides, and water. The balance is expected to be disposed of to landfill or to metal reclamation facilities, whereby its fate is similar to that disposed of by incineration. In landfill, the notified chemical that has been entrapped within a cured coating matrix is expected to be immobile. Overtime, the notified chemical may degrade via biotic and abiotic processes. The small proportion of uncured notified chemical that is disposed of to landfill is expected to associate with soil and sediments and be degraded via biotic and abiotic means.

9.1.2. Environment – effects assessment

No ecotoxicity data were provided. There is potential for bioaccumulation due to its molecular weight. However, this is unlikely given its expected high water solubility.

9.1.3. Environment – risk characterisation

A risk quotient cannot be calculated. However, based on the reported use pattern, the notified chemical is unlikely to pose an unacceptable risk to the environment.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

Transport and storage

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

Reformulation

Dermal and possibly ocular exposure to the notified chemical at a concentration of 40-60% (pre-blending) and up to 0.15% (post-blending) could occur during reformulation processes. Exposure will be limited by the use of control measures (exhaust ventilation) and the use of PPE. There is also potential for dermal and accidental ocular exposure to the notified chemical at a concentration of 40-60% during sampling and testing of the notified chemical by laboratory technicians. However, exposure is expected to be low due to the relatively small amounts involved and the use of PPE.

Spray Painting

The extent and type of exposure to the notified chemical (up to 0.15%) is likely to be related to the method of application and sophistication of the car repair shop. During mixing of the paint components exposure will be primarily dermal. In addition to dermal exposure, spray application may also lead to inhalation and ingestion exposure through formation of aerosols. At these sites

inhalation exposure should be mainly controlled by the use of spray booths in the majority of car repair shops. Exposure is likely to be greater in car repair shops where spray booths are not used. Exposure is expected to be limited due to the use of PPE, including respiratory protection and/or application in a well ventilated space and the low concentration of the notified chemical in the paint.

Once the final paint mixture has dried, the notified chemical will be irreversibly bound within the cured matrix and not separately available for exposure to workers.

9.2.2. Public health – exposure assessment

Paint products containing the notified chemicals will only be used by industrial spray painters. Although members of the public are likely to make contact with the inert cured paint film, the notified chemical will be trapped within the matrix and hence exposure is expected to be negligible.

9.2.3. Human health – effects assessment

No toxicological data have been provided for the notified chemical and therefore the substance cannot be classified in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

The notified chemical may exert irritant skin, eye and respiratory effects. In the absence of any available data other local and systemic effects cannot be ruled out.

Hazardous impurities are present in EFKA-5071 containing the notified chemical that will cause the product to be classified as a potential skin and inhalation sensitiser. These hazardous impurities are present above the concentration cut-off for classification in the Hazardous Substance Information System (HSIS, 2006).

9.2.4. Occupational health and safety – risk characterisation

Reformulation

Incidental dermal and ocular exposure may occur during weighing and addition of the chemical to the mixing vessel. The risk of exposure is low during blending as the process is enclosed and largely automated with little potential for exposure. The filling and packaging processes are largely automated also and therefore the risk of exposure to the notified chemical is also low. Inhalation exposure to the notified chemical is considered to be low due to low vapour pressure and it is further reduced by the use of PPE. At the reformulation site, engineering and PPE controls, in conjunction with appropriate safe work practices are expected to limit dermal, ocular and inhalation exposure and as such the risk to workers is considered to be low under these circumstances

End Use

The risk to workers handling formulated products containing the notified chemical (at up to 0.15%) is acceptable given the low concentration of the notified chemical in the product and the expected PPE that workers will use PPE. However, workers should avoid skin and eye contact with the product containing notified chemical. During spray application, the risk from exposure to aerosols is minimised by the expected use of PPE and the low concentration of the notified chemical in paints. Spray application in spray booths would further reduce the risk. The risk to workers will be higher in car repair shops were spraying occurs outside a spray booth.

Overall the risk to workers can only be considered low if appropriate controls are in place at all workplaces where the notified chemical is handled or used, especially where spray application occurs.

Measures in place to limit exposure to the hazardous impurities will also minimise exposure to the notified exposure and hence also limit the risk of the notified chemical to workers.

9.2.5. Public health – risk characterisation

Public exposure to the notified chemical is expected to be negligible and therefore the risk to public health is also expected to be negligible.

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

10.1. Hazard classification

No toxicological data have been provided for the notified chemical and therefore the substance cannot be classified in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004)

The local and systemic effects of the notified chemical are not known.

Classification of notified chemical using the Globally Harmonised System for the Classification and Labelling of Chemicals (GHS) (United Nations 2003) cannot be undertaken as no toxicological or ecotoxicological data were available. This system is not mandated in Australia and carries no legal status but is presented for information purposes.

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 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

- Employers should implement the following safe work practices to minimise occupational exposure during handling of the notified chemical as introduced and in reformulated paint products:
  - Avoid contact with skin and eyes
  - Avoid splashes and spills
  - Do not breathe spray
  - Spray application of paint containing the notified chemical should be in accordance with the NOHSC *National Guidance Material for Spray Painting* (NOHSC,

1999b)

- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified chemical as introduced and in reformulated paint products:
  - Suitable protective clothing
  - Eye/face protection
  - Suitable gloves
  - Suitable respirators where inhalation exposure is possible

- Employers should implement the following engineering controls to minimise occupational exposure to the notified chemical as introduced and in the formulated paint product:
  - Avoid generation of aerosols during paint formulation and preparation
  - Spray application should be carried out in an enclosed automated spray booth where possible

- 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 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 chemical should be disposed of by incineration or to landfill

Emergency procedures

- Spills or accidental release of the notified chemical should be handled by physical containment, collection and subsequent safe 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(1) of the Act; if
  - the importation volume exceeds one tonne per annum notified chemical; or
  - the notified chemical is formulated in paints at a concentration of ≥ 1%; or
  - if any toxicological data on the notified chemical becomes available

or

(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.

13. BIBLIOGRAPHY

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.

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