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

**PUBLIC REPORT**

**UVE-2**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of the Environment and Energy.

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**Director  
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## SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS CHEMICAL	INTRODUCTION VOLUME	USE
LTD/2098	RF Composites Pty Ltd	UVE-2	ND*	≤ 100 tonnes per annum	A component of industrial coatings for composite materials

\*ND = not determined

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Hazard Classification**

As no toxicity data were provided, the notified polymer cannot be classified according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), as adopted for industrial chemicals in Australia.

### **Human Health Risk Assessment**

Provided that the recommended controls are being adhered to, under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

### **Environmental Risk Assessment**

Based on the proposed use pattern, the notified polymer is not expected to pose an unreasonable risk to the environment.

### **Recommendations**

#### **CONTROL MEASURES**

#### **Occupational Health and Safety**

- A person conducting a business or undertaking at a workplace should implement the following engineering controls to minimise occupational exposure to the notified polymer during reformulation:
  - Enclosed and automated processes
  - Local exhaust ventilation
- A person conducting a business or undertaking at a workplace should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer during reformulation and spray application:
  - Avoid contact with skin and eyes
- A person conducting a business or undertaking at a workplace should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer during reformulation and spray application:
  - Impervious gloves
  - Safety glasses or goggles
  - Respiratory protection if aerosols are generated
  - Protective clothing

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (SWA, 2015) or relevant State or Territory Code of Practice.
- A copy of the SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)* as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

#### Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

#### Regulatory Obligations

##### *Secondary Notification*

This risk assessment is based on the information available at the time of notification. The Director may call for the reassessment of the chemical under secondary notification provisions based on changes in certain circumstances. Under Section 64 of the *Industrial Chemicals (Notification and Assessment) Act (1989)* the notifier, as well as any other importer or manufacturer of the notified chemical, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is listed on the Australian Inventory of Chemical Substances (AICS).

Therefore, the Director of NICNAS 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 polymer has a number-average molecular weight of less than 1000 g/mol;or
- (2) Under Section 64(2) of the Act; if
  - the function or use of the polymer has changed from a component of industrial coatings for composite materials, or is likely to change significantly;
  - the amount of polymer being introduced has increased, or is likely to increase, significantly;
  - the chemical/polymer has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the polymer on occupational health and safety, public health, or the environment.

The Director will then decide whether a reassessment (i.e. a secondary notification and assessment) is required.

##### *Safety Data Sheet*

The SDS of the notified chemical provided by the notifier was reviewed by NICNAS. The accuracy of the information on the SDS remains the responsibility of the applicant.

## ASSESSMENT DETAILS

### 1. APPLICANT AND NOTIFICATION DETAILS

#### APPLICANT(S)

RF Composites Pty Ltd (ABN: 21 164 742 536)  
Unit 1, 7 International Square  
TULLAMARINE VIC 3043

#### NOTIFICATION CATEGORY

Limited: Synthetic polymer with  $M_n \geq 1,000$  g/mol

#### EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details exempt from publication include: chemical name, other names, CAS number, molecular and structural formulae, molecular weight, analytical data, polymer constituents, residual monomers, impurities, additives/adjuvants, use details and import volume.

#### VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Schedule data requirements are varied for all physical and chemical properties.

#### PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

#### NOTIFICATION IN OTHER COUNTRIES

None

### 2. IDENTITY OF CHEMICAL

#### MARKETING NAME(S)

UVE-2 (containing the notified polymer at up to 50% concentration)

#### MOLECULAR WEIGHT

Number average molecular weight ( $M_n$ ) is  $> 1,000$  g/mol

#### ANALYTICAL DATA

Reference GPC spectra was provided.

### 3. COMPOSITION

#### DEGREE OF PURITY

$> 99\%$

### 4. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AT 20 °C AND 101.3 kPa: Clear liquid

<i>Property</i>	<i>Value</i>	<i>Data Source/Justification</i>
Melting Point/Freezing Point	Not determined	The polymer is a liquid state at room temperature
Boiling Point	Not determined	Due to the high molecular weight decomposition would be expected to occur prior to boiling
Density	1,100 kg/m <sup>3</sup> at 25°C	SDS*
Vapour Pressure	4.05×10 <sup>-27</sup> kPa at 25 °C	Calculated
Water Solubility	Not determined	Expected to be insoluble in water based on structural considerations.
Hydrolysis as a Function of pH	Not determined	Not expected to rapidly hydrolyse based on the low water solubility and lack of hydrolysable functions.

<b>Property</b>	<b>Value</b>	<b>Data Source/Justification</b>
Partition Coefficient (n-octanol/water)	Not determined	Expected to partition to the organic phase.
Adsorption/Desorption	Not determined	Expected to sorb to soil and sediment.
Dissociation Constant	Not determined	The notified polymer does not contain any dissociable functions.
Flash Point	194.5 °C	SDS*
Autoignition Temperature	385 °C	SDS*
Explosive Properties	Not determined	Contains no functional groups that would imply explosive properties.
Oxidising Properties	Not determined	Contains no functional groups that would imply oxidising properties.

\* Product containing up to 50% notified polymer

#### Reactivity

The notified polymer is expected to be stable under normal conditions of use.

#### Physical Hazard Classification

Based on the submitted physico-chemical data depicted in the above table, the notified polymer is not recommended for hazard classification according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia.

## 5. INTRODUCTION AND USE INFORMATION

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

The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia as a component of coating formulations at up to 50% concentration.

#### 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>	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100

#### PORT OF ENTRY

Melbourne

#### TRANSPORTATION AND PACKAGING

The notified polymer will be imported in 205 L lined steel drums. The reformulated end-use products will be supplied in 205 L lined steel drums or 10 L plastic pails. Transportation will be predominantly by road.

#### USE

The notified polymer will be used in coatings at up to 50% concentration, it is also reformulated into pigments containing the notified polymer at up to 20% concentration. The notified polymer will be used on/in composite materials.

#### OPERATION DESCRIPTION

##### Reformulation

The imported product containing the notified polymer (at up to 50% concentration) will be formulated into end-use products. The reformulation procedure will likely vary depending on the nature of the formulated products, and may involve both automated and manual transfer steps. However, in general, it is expected that the reformulation processes will involve blending operations that will be highly automated and use closed systems, followed by automated filling of the reformulated products into containers of various sizes. Sampling for quality control purposes is expected to take place.

##### End-use

Products containing the notified polymer will be predominantly applied by spray in industrial settings with local exhaust ventilation in place. A catalyst will be added to the coatings within the spray gun causing it to cure.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

#### 6.1.1. Occupational Exposure

##### CATEGORY OF WORKERS

<i>Category of Worker</i>	<i>Exposure Duration (hours/day)</i>	<i>Exposure Frequency (days/year)</i>
Transport and storage	1-2	2-4
Reformulation (manufacture of pigmented coating)	5-8	12
Painting/coating	5-8	260

##### EXPOSURE DETAILS

##### *Transport and Storage*

Transport and storage workers will be handling sealed containers and will be unlikely to have any direct exposure to the notified polymer at up to 50% concentration. Exposure may occur only in the event of an accident where the containers are breached.

##### *Reformulation*

Dermal, ocular and inhalation exposure to the notified polymer at up to 50% may occur during formulation and quality control processes. Exposure should be minimised through the use of the personal protective equipment such as respirators, solvent resistant gloves, goggles and protective clothing, as stated by the notifier. Inhalation exposure to the notified polymer is not expected due to its assumed low vapour pressure and the use of enclosed systems for formulation.

##### *End-use / Paint Application*

Dermal, ocular and inhalation exposure to spills and splashes of the notified polymer at up to 50% concentration to painters at industrial sites may occur during opening of drums, connection and disconnection of spray equipment, and during spray application, cleaning and maintenance of equipment. The use of personal protective equipment (PPE) such as organic vapour respirators, gloves, goggles and coveralls, as stated by the notifier should minimise exposure. Additionally, inhalation exposure should be further minimised by the spray operations being conducted with good general and local ventilation in place or in spray booths.

#### 6.1.2. Public Exposure

The notified polymer and products containing the notified polymer will not be sold or made available to the general public. The public may come into contact with surfaces applied with coatings the notified polymer at up to 50% concentration. However, once the coatings are dried, the notified polymer will be bound within an inert solid matrix and will not be available for exposure.

### 6.2. Human Health Effects Assessment

No toxicity data were submitted for the notified polymer.

No information on the toxicokinetics of the notified chemical was provided. For dermal absorption, molecular weights below 500 g/mol are favourable for absorption and molecular weights above 1,000 g/mol do not favour absorption (ECHA, 2017). Absorption of the notified polymer through the skin, gastrointestinal tract and respiratory tract is not expected to occur to a significant extent based on its high molecular weight (> 1,000 g/mol). However, the notified polymer contains an amount (< 12%) of low molecular weight species (< 500 g/mol) that may be absorbed through the skin if exposed.

The notified polymer contains a structural alert indicative of possible toxicity concerns associated with skin irritation, and skin and respiratory sensitisation.

##### *Health Hazard Classification*

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS), as adopted for industrial chemicals in Australia.

### **6.3. Human Health Risk Characterisation**

#### **6.3.1. Occupational Health and Safety**

Based on the structure of the notified polymer, it may have the potential to cause skin and eye irritation, and skin and respiratory sensitisation. Systemic effects are not expected due to limited absorption of the notified polymer.

During reformulation and end-use, workers may come into contact with the notified polymer at up to 50% concentration during blending and sampling operations, spray painting, and during cleaning and maintenance of equipment. The use of control measures such as local exhaust ventilation, automated processes and PPE by workers, is expected to minimise exposure to the notified polymer and reduce the risk of potential irritation and sensitisation effects.

Provided that the recommended controls are being adhered to, under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

#### **6.3.2. Public Health**

Coatings containing the notified polymer will not be sold or made available to the public.

When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **7.1. Environmental Exposure & Fate Assessment**

#### **7.1.1. Environmental Exposure**

##### **RELEASE OF CHEMICAL AT SITE**

The notified polymer is not manufactured in Australia. Reformulation occurs in an automated closed process which is directly filled into the packaging material. Equipment washings are collected and are either recycled or disposed of to landfill. Any accidental spills are collected using absorbent material and are expected to be ultimately disposed of to landfill.

##### **RELEASE OF CHEMICAL FROM USE**

The notified polymer is to be used as a surface coating applied to composite materials by a spray gun method. It is estimated that approximately 30% of the notified polymer will be lost to overspray during the application process, which will be collected on tarpaulins or plastic coverings and subsequently disposed of to landfill. Spray equipment washing containing the notified chemical in solvent will be collected and disposed of via a licenced waste contractor.

##### **RELEASE OF CHEMICAL FROM DISPOSAL**

The notified polymer is expected to share the fate of the substrate it is applied to which is expected to be eventually disposed of to landfill at the end of its useful life. Residues of the notified polymer may remain in the packaging containers which is estimated to make up 2% of the total import volume. Empty containers are treated with a catalyst to initiate curing of the residual notified polymer prior to disposal to landfill.

#### **7.1.2. Environmental Fate**

No environmental fate data were submitted. The majority of the notified polymer is expected to share the fate of the articles which it is applied to, which will eventually be disposed of to landfill as a part of the cured polymer matrix. The notified polymer is not expected to be mobile, bioavailable or readily biodegradable in this form. The notified polymer is not expected to be bioaccumulative in the cured matrix. In landfill, the notified polymer is expected to ultimately degrade via biotic and abiotic processes to form water and oxides of carbon and nitrogen.

#### **7.1.3. Predicted Environmental Concentration (PEC)**

A Predicted Environmental Concentration (PEC) could not be calculated. Based on the proposed use pattern and assumed low water solubility, no aquatic exposure is expected.



**7.2. Environmental Effects Assessment**

No ecotoxicity data were submitted. The notified polymer contains functionalities which have the potential to be harmful to aquatic species. However the notified polymer will be cured into a crosslinked polymer matrix during use which will limit any exposure to aquatic species.

**7.2.1. Predicted No-Effect Concentration**

The Predicted No-Effect Concentration (PNEC) could not be calculated as no ecotoxicological endpoints were provided.

**7.3. Environmental Risk Assessment**

The Risk Quotient,  $Q$  ( $= PEC/PNEC$ ), has not been calculated since neither a PEC nor PNEC is available. The majority of the notified polymer will be incorporated in a polymer matrix and bound to the substrate after application, and is not expected to be exposed to the aquatic environment. Therefore, based on the proposed use pattern, the notified polymer is not expected to pose and unreasonable risk to the environment.

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