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SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name: UCECOAT® 7699 polyurethane resins
Product Description: Aqueous PU dispersion, radiation curable
Intended/Recommended Use: Radiation curable coating ingredient

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2. HAZARDS IDENTIFICATION

HUMAN AND ENVIRONMENTAL HAZARDS

May cause sensitization by skin contact.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

Component / CAS No.	% (w/w)	EC-No	Classification
Dipentaerythritol hexaacrylate 29570-58-9	< 5.0	249-698-0	Xi; R36 N; R51/53
Pentaerythritol tetraacrylate 4986-89-4	< 2.0	225-644-1	Xi;R36/38 R43

See Section 16 for Ingredient Risk Phrase Text

4. FIRST AID MEASURES

Ingestion:

Material is not expected to be harmful by ingestion. No specific first aid measures are required.

Skin contact:

Wash immediately with plenty of water and soap. Remove contaminated clothing and shoes without delay. Obtain medical attention. Do not reuse contaminated clothing without laundering. Destroy or thoroughly clean shoes before reuse.

Eye contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical advice if there are persistent symptoms.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Apply artificial respiration if patient is not breathing. Obtain medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use water spray or fog, carbon dioxide or dry chemical.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

Keep containers cool by spraying with water if exposed to fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods for cleaning up:

Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

Environmental Precautions:

Avoid release to the environment.

7. HANDLING AND STORAGE

Handling

Provide good ventilation of working area (local exhaust ventilation if necessary).

Storage

Store in a cool, dry, well ventilated place and keep container tightly closed. Keep away from heat sources and direct sunlight.

Storage Temperature: Store at 4.00 - 40.00 °C

Reason: Integrity.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS - Limits

Triethylamine 121-44-8

The Netherlands: MAC (Maximal Aanvaarde Concentratie)	1.0 ppm (MAC) 4.2 mg/m ³ (MAC) 3.0 ppm (STEL) 12.6 mg/m ³ (STEL) (skin)
Germany: MAK (Maximale Arbeitsplatzkonzentration)	4.2 mg/m ³ (TWA) 1 ppm (TWA) (skin)
United Kingdom: WEL (Workplace Exposure Limits)	8 mg/m ³ (TWA) 2 ppm (TWA) 17 mg/m ³ (STEL) 4 ppm (STEL) ()
France: VLEP (Valeur Limites dExposition Professionnelle)	8.4 mg/m ³ (VME) 2 ppm (VME) 3 ppm (VLCT) 12.6 mg/m ³ (VLCT)
Denmark: Graensevaerdier	4.1 mg/m ³ (TWA) 1 ppm (TWA) (skin)
Norway:	2 ppm (TWA - OEL) 8 mg/m ³ (TWA - OEL) (skin)
Sweden: Hygieniska Gransvardeen	8 mg/m ³ (LLV) 2 ppm (LLV) 10 ppm (STV) 40 mg/m ³ (STV)
ACGIH (TLV)	1 ppm (TWA) 3 ppm (STEL) (skin)

Engineering Measures:

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure when spraying or curing at elevated temperatures.

Respiratory protection:

Where exposures are below the established exposure limit, no respiratory protection is required.

Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

A full facepiece respirator also provides eye and face protection.

Cutting, grinding or sanding of parts fabricated after curing may create respirable dust particles. Respiratory protection appropriate for this dust may be required. Refer to components listed above for potential hazardous components in the dust.

Eye protection:

Wear eye/face protection such as chemical splash proof goggles or face shield.

Eyewash equipment and safety shower should be provided in areas of potential exposure.

Skin Protection:

Avoid skin contact.

Wear impermeable gloves and suitable protective clothing.

Barrier creams may be used in conjunction with the gloves to provide additional skin protection.

Additional advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use.

Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour:	translucent to opaque white
Appearance:	dispersion
Odor:	practically odorless mild
Boiling Point:	~100 °C (value for water)
Melting Point:	Not applicable
Vapour pressure:	~2.3 kPa @ 20 °C (value for water)
Specific Gravity/Density:	~1.05 @ 20°C
Vapour density:	(value for water)
Percent Volatile (% by wt.):	63.5 - 66.5 mostly water
pH:	7.0 - 8.5(as is)
Saturation In Air (% By Vol.):	Not applicable
Evaporation rate:	Not available
Solubility In Water:	Miscible in all proportions
Volatile Organic Content (EU):	Not available
Flash point:	>100 °C Non Flammable
Flammable Limits (% By Vol):	Not applicable
Autoignition temperature:	Not applicable
Decomposition temperature:	Not applicable
Partition coefficient (n-octanol/water):	Not available

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	Avoid temperature higher than 40°C. This product is stable at room temperature and in normal handling conditions.
Polymerization:	May occur
Conditions To Avoid:	Hazardous polymerization can occur when exposed to direct sunlight. Hazardous exothermic polymerization can occur when heated. Uncontrolled polymerization may cause rapid evolution of heat and increase in pressure that could result in violent rupture of sealed storage vessels or containers
Materials to avoid:	may corrode mild steel Avoid contact with peroxides. Avoid contact with reactive metals. Avoid contact with strong acids and alkali"s. Avoid products which react with water. Avoid free radical producing initiators. Avoid sources of free radicals, peroxides and metal ions. Avoid contact with amines. Avoid contact with oxidizing agents.
Hazardous Decomposition Products:	acrylic acid toxic gases/vapors oxides of carbon smoke

11. TOXICOLOGICAL INFORMATION

Potential health effects

May cause sensitization by skin contact.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

Oral	rat	Acute LD50	>2000 mg/kg
dermal	rabbit	Acute LD50	>2000 mg/kg
Inhalation	rat	Acute LC50 4 hr	No data

LOCAL EFFECTS ON SKIN AND EYE

Acute Irritation	dermal	Not irritating
Acute Irritation	eye	Not irritating

ALLERGIC SENSITIZATION

Sensitization	Skin	Sensitizing
Sensitization	respiratory	Not sensitizing

GENOTOXICITY

Assays for Gene Mutations

Ames Salmonella Assay	No data
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OTHER INFORMATION

This product may release triethylamine when drying.

The product toxicity information above has been estimated.

The toxicological properties of this material have not been fully determined.

When the preparation test data are not available, the preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly. See sections 3 and 15 for details.

Prolonged or repeated contact with skin or mucous membrane may result in irritation symptoms such as redness, blistering, dermatitis, etc.

The inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.

Contact with skin may cause a cross-allergic reaction in persons already sensitized to acrylates.

HAZARDOUS INGREDIENT TOXICITY DATA

ACUTE TOXICITY DATA

Pentaerythritol tetraacrylate

Oral rat Acute LD50 (Actual)	> 2000 gm/kg
dermal rabbit Acute LC50 (actual)	> 2000 gm/kg

LOCAL EFFECTS ON SKIN AND EYE

Pentaerythritol tetraacrylate

Acute Dermal Irritation	irritating
Acute Eye Irritation	irritating

Dipentaerythritol hexaacrylate

Acute Eye Irritation	irritating
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ALLERGIC SENSITIZATION

Pentaerythritol tetraacrylate

Skin Sensitization	Sensitizing
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12. ECOLOGICAL INFORMATION

12. ECOLOGICAL INFORMATION

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The ecological assessment for this material is based on an evaluation of its components.

13. DISPOSAL CONSIDERATIONS

The Company encourages the recycle, recovery and reuse of materials, where permitted. If disposal is necessary, The Company recommends that organic materials, especially when classified as hazardous waste, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

ADR/RID

Proper Shipping Name: Not applicable/Not regulated

IMO

Proper shipping name: Not applicable/Not regulated

ICAO / IATA

Proper shipping name: Not applicable/Not regulated

Packing Instructions/Maximum Net Quantity Per Package:

Passenger Aircraft: -

Cargo Aircraft: -

15. REGULATORY INFORMATION

EU MARKING AND LABELING

Symbol(s): Xi - Irritant

Risk Phrases:

R43 - May cause sensitization by skin contact.

R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S61 - Avoid release to the environment.

S36/37 - Wear suitable protective clothing and gloves.

INVENTORY INFORMATION

European Union (EU):

All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

United States (USA):

All components of this product are NOT included on the Toxic Substance Control Act (TSCA) Inventory. The chemical, physical, and toxicological properties of this material have not been fully investigated. Its handling or use may be hazardous, and it must be used under the supervision of technically qualified individuals. Materials not included on the TSCA Inventory may only be used for research and development (R&D) purposes or in other TSCA exempt activities.

Canada:

This product contains components not on the Domestic Substances List.

Australia: One or more components of this product have NOT yet been included in the Australian Inventory of Chemical Substances (AICS) or assessed by NICNAS.

China: All components of this product are NOT included on the Chinese inventory.

Japan: All components of this product are NOT included on the Japanese (ENCS) inventory.

Korea: All components of this product are NOT included on the Korean (ECL) inventory.

Philippines: All components of this product are NOT included on the Philippine (PICCS) inventory.

16. OTHER INFORMATION

Reasons for Issue: New Format

Component Risk Phrases

Dipentaerythritol hexaacrylate

R36 - Irritating to eyes.

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Pentaerythritol tetraacrylate

R43 - May cause sensitization by skin contact.

R36/38 - Irritating to eyes and skin.

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