

XENNIA TECHNOLOGY LTD

Date: 29th August 2006

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MATERIAL SAFETY DATA SHEET

Section 1: Product and Company Identification

Name: X8000 (Formerly known as GAF63)

Supplier: Xennia Technology Ltd, UK
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Works Road,
Letchworth, UK
SG6 1LN

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Section 2: Composition/Information and Ingredients

DESCRIPTION: A black UV-curable ink

COMPONENTS	CAS#	EC#	% [wt/wt]	OSHA PEL	CIEL-TWA	Symbol	R-phrase
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	075980-60-8	278-355-8	1-5	NA	NA	Xn N	R62 R51/53
aromatic urethane acrylate	Proprietary	Classified as 'No Longer Polymer' Eines number not required.	5-15	NA	NA	Xi	R36
dipentaerythritol penta/hexa acrylate	29570-58-9	249-698-0	5-10	NA	NA	Xi	R36
tris(2-hydroxyethyl)isocyanurate triacrylate	60506-81-2	262-270-8	1-5	NA	NA	Xi	R43
1,6-hexanediol diacrylate	40220-08-4	254-843-6	1-5	NA	NA	Xi	R41
ethoxylated (3) trimethylolpropane triacrylate	13048-33-4	235-921-9	1-5	NA	NA	Xi	R36/38 R43
diacrylate of bisphenol A derivative	28961-43-5	Classified as 'No Longer Polymer' Eines number not required.	1-5	NA	NA	Xi	R36
1-methoxy-2-propanol	Proprietary	Classified as 'No Longer Polymer' Eines number not required.	1-5	NA	NA	Xi	R36
	107-98-2	203-539-1	50-70	NA	NA	Flammable	R10

See Section 3 for potential health effects, Section 11 for available toxicity data, Section 15 for regulatory information.

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Section 3: Hazard Identification

EMERGENCY OVERVIEW:	Flammable (R10). Irritating to eyes and skin (R36/38). Risk of serious damage to eyes (R41). May cause sensitization by skin contact (R43). Toxic to aquatic organisms/ may cause long-term adverse health effects in the aquatic environment (R51/53). Possible risk of impaired fertility (R62).
NPCA HMIS RATING:	Health: 2 Flammability: 3 Reactivity: 2
POTENTIAL HEALTH EFFECTS:	
EYE CONTACT:	Irritating to eyes.
SKIN CONTACT:	May cause irritation including redness or itching and dermatitis.
INGESTION:	Potential ingestion hazard.
INHALATION:	Suspect respiratory tract irritation hazard.
CHRONIC:	Unknown.

Section 4: First Aid Measures

INHALATION	Remove to fresh air. Give oxygen or artificial respiration as needed. Seek medical attention.
EYE CONTACT:	For even minor eye contact, immediately flush eyes with copious amounts of cool water for 20 minutes retracting eyelids often to ensure thorough washing. Seek medical attention.
SKIN CONTACT:	Remove contaminated clothing. Wash skin thoroughly with mild soap and rinse with water for about 20 minutes. Do not use organic solvents. Launder contaminated clothing.
INGESTION:	Never give anything orally to a person who is losing consciousness, unconscious, or convulsing. If conscious, give plenty of water (if possible charcoal slurry) to drink and seek medical advice. Artificial induction of vomiting should be restricted to first aid staff.

In any case of persistent irritation, seek medical advice.

Section 5: Fire Fighting Measures

SUITABLE EXTINGUISHING MEDIA:	Foam, carbon dioxide, dry chemicals.
UNSUITABLE EXTINGUISHING MEDIA:	High pressure water jet.
EXPOSURE HAZARDS:	Do not breath fumes. Risk of formation of toxic products. May polymerise at high temperature. Polymerisation is highly exothermic and may produce sufficient heat to cause thermal decomposition and/or rupture of container. Thermal decomposition can lead to the evolution of irritant vapour or gases and/or fire.

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Cool the container with sprayed water to avoid polymerisation.
Eliminate hot points.
Fire will produce dense, black, acrid smoke.
Do not allow run-off from fire fighting to enter drains or water courses.

EQUIPMENT FOR FIRE FIGHTERS: Full protective clothing
Self-contained breathing apparatus

COMBUSTION PRODUCTS: Oxides of carbon, nitrogen and sulfur. Toxic gases/vapours.

Section 6: Accidental Release Measures

PERSONAL PRECAUTIONS: Do not breathe vapour/dust.
Wear protective equipment (See Section 8).
Remove soaked clothing immediately.

ENVIRONMENTAL PRECAUTIONS: Do not flush into or allow to enter surface water, sanitary sewer or ground water system.

METHODS FOR CLEANING UP: Contain spreading.
Absorb with mineral filler (e.g. sand, diatomaceous earth), collect and store in a suitable container for disposal according to local regulations.

Section 7: Handling and Storage

HANDLING: Use only in well-ventilated areas or wear suitable respiratory equipment.
Wear protective equipment (see Section 8).
Avoid contact with skin and eyes.
Do not eat, drink or smoke at the workplace.

STORAGE: Isolate from sources of heat, sparks and open flame.
Avoid exposure to direct sunlight, UV radiation and strong oxidisers.
Do not expose to temperatures exceeding 60°C for long periods.
Do not store under inert gas.

INCOMPATIBLE MATERIALS: Keep away from oxidizing materials, acids, bases.

Section 8: Exposure Controls/Personal Protection

EXPOSURE LIMITS: Not tested

ENGINEERING CONTROLS: Local exhaust ventilation recommended.

PERSONAL PROTECTION:

RESPIRATORY: Ensure adequate ventilation or wear suitable respiratory equipment.

HAND PROTECTION: Do not use natural rubber or PVC gloves.
Wear nitrile rubber gloves
Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.

EYE PROTECTION: Wear a face shield, chemical goggles or safety glasses.
Contact lenses should not be worn.

SKIN: Wear suitable protective clothing.

OTHER: An eye wash facility and safety shower must be available nearby.

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Section 9: Physical and Chemical properties

APPEARANCE:	Black liquid.
ODOUR:	Ether
ACIDITY (mg KOH/g):	Not applicable
BOILING POINT:	117-125°C (760 mm Hg)
FLASH POINT:	30°C (closed cup)
SPONTANEOUS IGNITION:	290°C
VAPOR PRESSURE:	1170 Pa
EVAPORATION RATE:	0.75 BuAc=1
SPECIFIC GRAVITY:	~0.9
SOLUBILITY:	
IN WATER:	No
IN ORGANIC SOLVENTS:	Soluble in polar solvents
VISCOSITY:	7.9 cP @ 25°C

Section 10: Stability and Reactivity

CONDITIONS TO AVOID:	Avoid temperatures higher than 60°C. Avoid direct sunlight. Avoid exposure to strong UV sources. Avoid direct contact with heat sources. Avoid friction with temperature increase as a result. Avoid static discharges.
MATERIALS TO AVOID:	Avoid free radical producing initiators. Avoid contact with peroxides. Avoid contact with reactive metals. Avoid contact with strong acids. Avoid contact with strong alkalis. Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:	Hazardous exothermic polymerisation can occur when heated Hazardous polymerisation can occur when exposed to direct sunlight. Oxides of carbon, oxides of nitrogen and oxides of sulfur. Acid fumes. Toxic gases/vapours.
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Section 11: Toxicological Information

TOXICOLOGICAL EFFECTS AND POSSIBLE SYMPTOMS AFTER EXPOSURE:	Prolonged or repeated contact with skin or mucous membrane may result in irritation symptoms such as redness, blistering, dermatitis, etc. Inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract. Ingestion may cause nausea, weakness and central nervous system effects.
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ACUTE TOXICITY: INFORMATION ON THE COMPONENTS:	This formulation has not been tested for acute toxicological effects.
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Acute toxicity: oral: LD50: rat > 2000mg/kg Eye irritation: non-irritant Skin irritation: non-irritant Skin sensitization: non-sensitising
aromatic urethane acrylate	Can be expected to be an eye irritant OECD irritation index = 0 Draize P.I.I. = 0.7 Skin irritation: well-defined to severe erythema and oedema
dipentaerythritol penta/hexa acrylate	Toxicological properties have not been fully determined Eye irritation: reversible corneal opacity, severe redness and oedema Skin irritation: moderate erythema and oedema
tris(2-hydroxyethyl)isocyanurate	Eye irritation: risk of serious damage to eyes Skin irritation: non-irritant
1,6-hexanediol diacrylate	Eye irritation: irritating to eyes Skin irritation: irritating to skin Skin sensitization: may cause sensitization by skin contact
diacrylate of bisphenol A derivative	Toxicological properties have not been fully determined Can be expected to be an eye irritant OECD irritation index = 0 Draize P.I.I. = 1.7
ethoxylated (3) trimethylolpropane triacrylate	Acute toxicity: oral: LD50: rat > 2000mg/kg dermal: LD50: rat > 2000mg/kg Eye irritation: irritating to eyes Skin irritation: non-irritant
1-methoxy-2-propanol	Toxic dose: oral: LD50: rat 5660mg/kg
SUBCHRONIC EFFECTS:	This formulation has not been tested for subchronic toxicological effects.
CHRONIC EFFECTS/CARCINOGENICITY:	This formulation has not been tested for chronic toxicological effects.
MUTAGENICITY: COMPONENTS:	This formulation has not been tested for mutagenic effects.
REPRODUCTIVE EFFECTS:	This ink has not been tested for reproductive effects.

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Section 12: Ecological Information

ECOTOXICOLOGICAL INFORMATION: No data available for this formulation.

COMPONENT

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide Acute toxicity: Fish: LC50, 48h: 1-10mg/l
Daphnia: not tested
Bacteria: EC50, 0.5h: >1.0mg/l
Algae: not tested

1-methoxy-2-propanol Acute toxicity: Fish: practically non-toxic

BIODEGRADABILITY:

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide Not really biodegradable

1-methoxy-2-propanol Readily biodegradable

ECOTOXIC EFFECTS:

Do not discharge into drains or the environment, dispose to an authorized waste collection point.

Section 13: Disposal Considerations

MEASURES FOR DISPOSAL: Controlled incineration in compliance with local legislation.

DISPOSAL OF CONTAMINATED PACKAGING: Treated as per residual chemical.

Section 14: Transport Information

PROPER SHIPPING NAME: PRINTING INK, FLAMMABLE, ENVIRONMENTALLY HAZARDOUS SUBSTANCE

Flash point 23-61°C

ADR/RID Class: 3
UN No.: 1210
Packing group: III
Additional information: 1-METHOXY-2-PROPANOL, DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINOXIDE, HYDROXYPHENONE DERIVATIVE

IMO Class: 3
UN No.: 1210
Packing group: III
Marine pollutant
Additional information: 1-METHOXY-2-PROPANOL, DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINOXIDE, HYDROXYPHENONE DERIVATIVE

ICAO Class: 3
UN No.: 1210
Packing group: III
Additional information: 1-METHOXY-2-PROPANOL, DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINOXIDE, HYDROXYPHENONE DERIVATIVE

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Section 15: Regulatory Information

Symbols:

F Flammable

Xi Irritant

Xn Harmful

N Dangerous for the environment

R PHRASES:

R10: Flammable

R36/38: Irritating to eyes and skin.

R41: Risk of serious damage to eyes.

R43: May cause sensitization by skin contact.

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

S PHRASES:

R62: Possible risk of impaired fertility.

S24: Avoid contact with skin.

S25: Avoid contact with eyes

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28: EN: After contact with skin, wash immediately with plenty of detergent suitable for skin use and cold or warm water.

ES: En caso de contacto con la piel, lávese inmediatamente y abundantemente con un detergente apto para la piel y con agua fría o caliente.

DA: Vask ved kontakt med huden straks med store mængder rensmiddel, der er egnet til brug på huden, og koldt eller varmt vand.

DE: Bei Berührung mit der Haut sofort mit viel Reinigungsmittel, das für die Anwendung auf der Haut geeignet ist, und kaltem oder warmen Wasser abwaschen.

FR: Après contact avec la peau, se laver immédiatement et abondamment avec un détersif sans risque dermatologique et de l'eau froide ou tiède.

IT: In caso di contatto con la pelle lavarsi immediatamente ed abbondantemente con detergenti idonei per la pelle e con acqua fredda o calda.

NL: Na aanraking met de huid onmiddellijk wassen met veel wasmiddel geschikt voor de huid en koud of warm water.

FI: Roiskeet iholta on huuhdeltava välittömästi runsaalla määrällä ihon puhdistukseen soveltuvaa puhdistusainetta ja kylmällä tai lämpimällä vedellä.

SV: Vid hudkontakt tvätta genast noggrant med stora mängder rengöringsmedel lämpligt för hudrengöring samt kallt eller varmt vatten..

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

S51: Use only in well-ventilated areas

S60: This material and/or its container must be disposed of as hazardous waste.

S61: Avoid release to the environment. Refer to special instruction/safety data sheets.

Section 16: Other Information

None

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