In accordance with Regulation (EC) No. 1272/2008

SAFETY DATA SHEET

Issuing date 27-Sep-2016

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Code MW460
Product name MW460

Relevant identified uses of the substance or mixture and uses advised against

Recommended use Printing ink

Uses advised against No information available

Details of the supplier of the safety data sheet

Company
Markem-Imaje S.A.S.
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France

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Tel: (33) 4 75 75 55 00
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Emergency Telephone Numbers:
Markem-Imaje S.A.S.: (33) 4 75 75 55 00
INRS* (Orfila): (33) 1 45 42 59 59

MARKEM-IMAJE SAS
9, rue Gaspard Monge - BP 110

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Phone: 04 75 75 55 00
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Emergency telephone number
Markem-Imaje S.A.S.: (33) 4 75 75 55 00
INRS (Orfila): (33) 1 45 42 59 59

Section 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Serious eye damage/eye irritation	Category 2 - (H319)
Specific target organ toxicity - single exposure	Category 3 - (H336)
Flammable liquids	Category 2 - (H225)

Label elements

Section 2: HAZARDS IDENTIFICATION

Product identifier

Signal word
Danger

hazard statements
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H225 - Highly flammable liquid and vapour

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapours/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/ .? /equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Skin
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

EYES
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

FIRE
In case of fire: Use CO2, dry chemical, or foam for extinction

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTRE or doctor/physician if you feel unwell

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Other hazards

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature of the preparation
Preparation.

Chemical Name	EC-No	CAS-No	Weight %	GHS Classification	REACH No
Methyl ethyl ketone	201-159-0	78-93-3	70 - 80	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3 (H336)	Not available
Titanium dioxide	236-675-5	13463-67-7	5 - 10	Not hazardous	Not available
Ethylacetate	205-500-4	141-78-6	< 1	Eye Irrit. 2 (H319) STOT SE 3 (H336) Flam. Liq. 2 (H225) (EUH066)	Not available

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. If symptoms persist, call a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapours.

Skin contact Wash off immediately with plenty of water. Immediate medical attention is not required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Immediately flush with plenty of water. Keep eye wide open while rinsing.

Ingestion Immediate medical attention is not required. Rinse mouth. Drink plenty of water. Do NOT induce vomiting. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.

Protection of first-aiders Remove all sources of ignition. Use personal protective equipment.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms/Effects No information available

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Dry chemical, CO_2, water spray or alcohol-resistant foam. dry chemical. Carbon dioxide (CO_2). water spray. alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
CAUTION: All these products have a very low flash point Do not use dry chemical extinguishers to control fires involving nitromethane or nitroethane Do not use straight streams

Special hazards arising from the substance or mixture

extremely flammable Keep product and empty container away from heat and sources of ignition Risk of ignition

Advice for fire-fighters

Protective equipment and precautions for firefighters Move containers from fire area if you can do it without risk.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Pay attention to flashback. Take precautionary measures against static discharges.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Beware of vapours accumulating to form explosive concentrations.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labelled containers. Soak up with inert absorbent material. Take precautionary measures against static discharges.

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Handling
Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing.

Hygiene measures
When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

Conditions for safe storage, including any incompatibilities

Storage
Keep tightly closed in a dry and cool place. Keep in properly labelled containers. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat and sources of ignition. Keep away from heat. Protect from light.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical Name	EU	The United Kingdom	France	Spain	Germany
Methyl ethyl ketone 78-93-3	TWA 200 ppm TWA 600 mg/m^3 STEL 300 ppm STEL 900 mg/m^3	TWA: 200 ppm TWA: 600 mg/m^3 STEL: 300 ppm STEL: 899 mg/m^3 Sk*	TWA: 200 ppm TWA: 600 mg/m^3 STEL: 300 ppm STEL: 900 mg/m^3	TWA: 200 ppm TWA: 600 mg/m^3 STEL: 300 ppm STEL: 900 mg/m^3	TWA: 200 ppm TWA: 600 mg/m^3 Ceiling / Peak: 200 ppm Ceiling / Peak: 600 mg/m^3
Titanium dioxide 13463-67-7		TWA: 10 mg/m^3 TWA: 4 mg/m^3 STEL: 30 mg/m^3 STEL: 12 mg/m^3	TWA: 10 mg/m^3	TWA: 10 mg/m^3	-
Ethylacetate 141-78-6		TWA: 200 ppm STEL: 400 ppm	TWA: 400 ppm TWA: 1400 mg/m^3	TWA: 400 ppm TWA: 1460 mg/m^3	TWA: 400 ppm TWA: 1500 mg/m^3 Ceiling / Peak: 800 ppm Ceiling / Peak: 3000 mg/m^3

Chemical Name	Italy	Portugal	The Netherlands	Finland	Denmark
Methyl ethyl ketone 78-93-3	TWA: 200 ppm TWA: 600 mg/m^3 STEL: 300 ppm STEL: 900 mg/m^3	TWA: 200 ppm TWA: 600 mg/m^3 STEL: 300 ppm STEL: 900 mg/m^3	TWA: 590 mg/m^3 STEL: 900 mg/m^3 H*	STEL: 100 ppm STEL: 300 mg/m^3 iho*	TWA: 50 ppm TWA: 145 mg/m^3 H*
Titanium dioxide 13463-67-7	-	TWA: 10 mg/m^3	-		TWA: 6 mg/m^3
Ethylacetate 141-78-6	-	TWA: 400 ppm	-	TWA: 300 ppm TWA: 1100 mg/m^3 STEL: 500 ppm STEL: 1800 mg/m^3	TWA: 150 ppm TWA: 540 mg/m^3

Chemical Name	Austria	Switzerland	Poland	Norway	Ireland
Methyl ethyl ketone 78-93-3	TWA: 100 ppm TWA: 295 mg/m^3 STEL 200 ppm STEL 590 mg/m^3 H*	TWA: 200 ppm TWA: 590 mg/m^3 STEL: 200 ppm STEL: 590 mg/m^3 H*	STEL: 900 mg/m^3 TWA: 450 mg/m^3	TWA: 75 ppm TWA: 220 mg/m^3 STEL: 112.5 ppm STEL: 275 mg/m^3	TWA: 200 ppm TWA: 600 mg/m^3 STEL: 300 ppm STEL: 900 mg/m^3 Sk*
Titanium dioxide 13463-67-7	TWA: 5 mg/m^3 STEL 10 mg/m^3	TWA: 3 mg/m^3	STEL: 30 mg/m^3(as Titanium compounds) TWA: 10.0 mg/m^3	TWA: 5 mg/m^3 STEL: 10 mg/m^3	TWA: 10 mg/m^3 TWA: 4 mg/m^3 STEL: 30 mg/m^3 STEL: 12 mg/m^3
Ethylacetate 141-78-6	TWA: 300 ppm TWA: 1050 mg/m^3 STEL 600 ppm STEL 2100 mg/m^3	TWA: 400 ppm TWA: 1400 mg/m^3 STEL: 800 ppm STEL: 2800 mg/m^3	STEL: 600 mg/m^3 TWA: 200 mg/m^3	TWA: 150 ppm TWA: 550 mg/m^3 STEL: 187.5 ppm STEL: 687.5 mg/m^3	TWA: 200 ppm STEL: 400 ppm

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

Exposure controls

Engineering measures Ensure adequate ventilation. Use explosion-proof equipment.

Personal protective equipment

Eye/face protection tightly fitting safety goggles. face-shield.

Hand protection Wear protective gloves. impervious butyl rubber gloves.

Skin and body protection antistatic boots. Wear fire/flame resistant/retardant clothing. impervious gloves. long sleeved clothing. Chemical resistant apron. apron.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Environmental exposure controls Do not allow material to contaminate ground water system.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state liquid

Odour Solvent

Colour white

Odour Threshold No information available

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Values		
Melting/freezing point	<-80°C / <-112°F	**pH**	No information available
Flash point	>-9°C / >16°F	**Boiling point/range**	>75°C / >167°F
Flammability Limits in Air			
lower flammability limit	1.8		
upper flammability limit	11.5	**Solubility in other solvents**	No information available
Autoignition temperature	>400°C / >752°F	**Decomposition temperature**	No information available
Kinematic viscosity	No information available	**Dynamic viscosity**	No information available
Oxidizing properties	No information available		

OTHER INFORMATION

Vapour pressure	13.3 kPa (25 °C)
Relative vapour density	>1
Density	0.938 (20 °C)
Water solubility	partly soluble
Partition coefficient: n-octanol/water	log P(o/w) = 0.26

Section 10: STABILITY AND REACTIVITY

Reactivity

no data available

Chemical stability

Stable.

Explosion Data

Sensitivity to Mechanical Impact	none
Sensitivity to Static Discharge	yes.

Possibility of hazardous reactions

Hazardous polymerisation
no.

Hazardous reactions
strong oxidizing agents.

Conditions to avoid

Heat, flames and sparks.

Incompatible materials

Incompatible with oxidizing agents. Incompatible with strong acids and bases.

Hazardous decomposition products

none.

Section 11: TOXICOLOGICAL INFORMATION

Section 11: TOXICOLOGICAL INFORMATION

Acute Toxicity

Inhalation May cause irritation of respiratory tract. May be harmful if inhaled.

Skin contact Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Eye contact Irritating to eyes. May cause irreversible eye damage.

Ingestion May be harmful if swallowed. Ingestion may cause irritation to mucous membranes.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl ethyl ketone	2737 mg/kg (Rat)	= 6480 mg/kg (Rabbit) = 5000 mg/kg (Rabbit)	= 11700 ppm (Rat) 4 h
Titanium dioxide	> 10000 mg/kg (Rat)		
Ethylacetate	= 5620 mg/kg (Rat)	> 18000 mg/kg (Rabbit) > 20 mL/kg (Rabbit)	

Chemical Name	IARC	UK
Titanium dioxide	Group 2B	

Chronic toxicity Repeated or prolonged exposure may cause irritation of eyes and skin. Repeated and prolonged exposure to solvents may cause brain and nervous system damage. Avoid repeated exposure.

Other information Avoid exposure to women during early pregnancy.

Section 12: ECOLOGICAL INFORMATION

Chemical Name	CAS-No	log Pow	Toxicity to Algae	Toxicity to microorganisms	German Water Class (VwVwS) Annex 2
Methyl ethyl ketone	78-93-3	0.29			150
Ethylacetate	141-78-6	0.6	3300: 48 h Desmodesmus subspicatus mg/L EC50		95

Chemical Name	CAS-No	Daphnia Magna (Water Flea)	Toxicity to fish
Methyl ethyl ketone	78-93-3	520: 48 h Daphnia magna mg/L EC50 4025 - 6440: 48 h Daphnia magna mg/L EC50 Static 5091: 48 h Daphnia magna mg/L EC50	3130 - 3320: 96 h Pimephales promelas mg/L LC50 flow-through
Ethylacetate	141-78-6	560: 48 h Daphnia magna mg/L EC50 Static	220 - 250: 96 h Pimephales promelas mg/L LC50 flow-through 352 - 500: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 484: 96 h Oncorhynchus mykiss mg/L LC50 flow-through

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues/Unused Products	Dispose of in accordance with local regulations

Section 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN-No	UN1210
14.2. Proper shipping name	Printing ink
14.3. Hazard Class	3
14.4. Packing group	II
14.5. Marine pollutant	none.
EmS	F-E, S-D

ADR

14.1. UN-No	UN1210
14.2. Proper shipping name	Printing ink
14.3. Hazard Class	3
14.4. Packing group	II
Classification Code	F1

IATA

14.1. UN-No	UN1210
14.2. Proper shipping name	Printing ink
14.3. Hazard Class	3
14.4. Packing group	II

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

In accordance with Regulation (EC) No. 1272/2008

International Inventories

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

Chemical Safety Assessment

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms

Issuing date	27-Sep-2016
Reason for revision	All

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

End of Safety Data Sheet