Safety data sheet

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name **SERIE PLT1: METALLIZZATI**

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

Intended use **Pad printing ink.**

1.3. Details of the supplier of the safety data sheet

Name	**COMEC ITALIA SRL**
Full address	**PIAZZALE DEL LAVORO 149**
District and Country	**21044 CAVARIA VA**
	ITALIA
	Tel. 0331 219516
	Fax 0331 216161
e-mail address of the competent person	
responsible for the Safety Data Sheet	**info@comec-italia.it**
Product distribution by	**EDGARDO BAGGINI**

1.4. Emergency telephone number

For urgent inquiries refer to **+39 0331 219516 (8.00 - 12.30 13.30 - 17.30)**

SECTION 2. Hazards identification.

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments.

Hazard classification and indication:

Flam. Liq. 3	H226
Asp. Tox. 1	H304
Eye Irrit. 2	H319
Aquatic Acute 1	H400
Aquatic Chronic 2	H411

2.1.2. 67/548/EEC and 1999/45/EC Directives and following amendments and adjustments.

Danger Symbols:
Xn-N
R phrases:
10-20-36-51/53-65

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210	Keep away from heat / sparks / open flames / hot surfaces. No smoking.
P233	Keep container tightly closed.
P264	Wash the hands thoroughly after handling.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician.
P303+P361+P353	IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.

Contains: Aromatic hydrocarbons, C9

2.3. Other hazards.

Information not available.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	**Conc. %.**	**Classification 67/548/EEC.**	**Classification 1272/2008 (CLP).**
CYCLOHEXANONE			
CAS. 108-94-1 EC. 203-631-1	13,5 - 15	R10, Xn R20	Flam. Liq. 3 H226, Acute Tox. 4 H332
INDEX. 606-010-00-7			
Reg. no. 01-2119453616-35-xxxx			
Aromatic hydrocarbons, C9			
CAS. 64742-95-6 EC. 918-668-5	12 - 13,5	R10, R66, R67, Xn R65, Xi R37, N R51/53, Note P	Flam. Liq. 3 H226, Asp. Tox. 1 H304, STOT SE 3 H335, STOT SE 3 H336, Aquatic Chronic 2 H411, EUH066, Note P

INDEX. 649-356-00-4

Reg. no. 01-2119486773-35-xxxx

4-HYDROXY-4-METHYLPENTAN-2-ONE

CAS. 123-42-2 EC. 204-626-7	10,5 - 12	Xi R36	Flam. Liq. 3 H226, Eye Irrit. 2 H319

INDEX. 603-016-00-1

Reg. no. 01-2119473975-21xxxx

ALUMINIUM POWDER (STABILIZED)

CAS. 7429-90-5 EC. 231-072-3	9 - 10,5	F R11, Note T	Flam. Sol. 1 H228, Note T

INDEX. 013-002-00-1

Reg. no. 01-2119529243-45

BUTYLGLYCOL ACETATE

CAS. 112-07-2 EC. 203-933-3	7 - 8	Xn R20/21	Acute Tox. 4 H312, Acute Tox. 4 H332

INDEX. 607-038-00-2

Reg. no. 01-2119475112-47xxxx

COPPER

CAS. 7440-50-8 EC. 231-159-6	3 - 3,5	Xn R22, N R50/53	Acute Tox. 4 H302, Aquatic Acute 1 H400 M=10

INDEX. -

HYDROCARBONS, C10-C13, n-alkanes, isoalkanes, CYCLIC, <2% AROMATIC

CAS. - EC. 918-481-9	2,5 - 3	R66, Xn R65	Asp. Tox. 1 H304, EUH066

INDEX. -

Reg. no. 01-2119457273-39-xxxx

ZINC POWDER - ZINC DUST

CAS. 7440-66-6	0,9 - 1	N R50/53	Aquatic Acute 1 H400 M=10, Aquatic Chronic 1 H410 M=10

EC. 231-175-3

INDEX. 030-001-01-9

Reg. no. 01-2119467174-37

2-METHOXY-1-METHYLETHYL ACETATE

CAS. 108-65-6 EC. 203-603-9	0 - 0,1	R10	Flam. Liq. 3 H226

INDEX. 607-195-00-7

Reg. no. 01-2119475791-29-xxxx

METHANOL

CAS. 67-56-1	0 - 0,1	F R11, T R23/24/25, T R39/23/24/25	Flam. Liq. 2 H225, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, STOT SE 1 H370

EC. 200-659-6

INDEX. 603-001-00-X

Amines, hydrogenated tallow alkyl

CAS. 61788-45-2	0 - 0,1	Xn R48/22, Xi R38, Xi R41, N R50	STOT RE 2 H373, Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Acute 1 H400 M=10

EC. 262-976-6

INDEX. -

Reg. no. 01-2119473799-15**

Note: Upper limit is not included into the range.

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.
T+ = Very Toxic(T+), T = Toxic(T), Xn = Harmful(Xn), C = Corrosive(C), Xi = Irritant(Xi), O = Oxidizing(O), E = Explosive(E), F+ = Extremely Flammable(F+), F = Highly Flammable(F), N = Dangerous for the Environment(N)

SECTION 4. First aid measures.

4.1. Description of first aid measures.

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

4.2. Most important symptoms and effects, both acute and delayed.

For symptoms and effects caused by the contained substances, see chap. 11.

4.3. Indication of any immediate medical attention and special treatment needed.

Information not available.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT
Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.
UNSUITABLE EXTINGUISHING EQUIPMENT
Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.

5.3. Advice for firefighters.

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any

contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions.

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up.

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling.

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Regulatory References:

United Kingdom	EH40/2005 Workplace exposure limits. Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended).
Éire	Code of Practice Chemical Agent Regulations 2011.
OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
TLV-ACGIH	ACGIH 2012

CYCLOHEXANONE
Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	40,8	10	81,6	20	SKIN
OEL	IRL	40,8	10	81,6	20	SKIN
TLV-ACGIH		80	20	201	50	
WEL	UK	41	10	82	20	SKIN

Predicted no-effect concentration - PNEC.		
Normal value for the terrestrial compartment	0,0143	mg/Kg
Normal value in fresh water	0,0329	mg/l
Normal value in marine water	0,0329	mg/l
Normal value for fresh water sediment	0,0951	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation.							120 mg/m3	20 mg/m3
Skin.							VND	20 mg/kg/d

Aromatic hydrocarbons, C9

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH		100	20	250	50	

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.			VND	11 mg/kg				
Inhalation.			VND	32 mg/m3			VND	150 mg/m3
Skin.			VND	11 mg/kg			VND	25 mg/kg

4-HYDROXY-4-METHYLPENTAN-2-ONE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	IRL	240	50	360	75	
TLV-ACGIH		238	50			
WEL	UK	241	50	362	75	

ALUMINIUM POWDER (STABILIZED)

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	IRL	1				
TLV-ACGIH		1	0,9			
WEL	UK	4				

DIMETHYL ADIPATE, DIMETHYL GLUTARATE, DIMETHYL SUCCINATE, REACTION MASS

Predicted no-effect concentration - PNEC.		
Normal value for the terrestrial compartment	0,09	mg/kg/d
Normal value in fresh water	0,018	mg/l
Normal value for water, intermittent release	0,18	mg/l
Normal value in marine water	0,0018	mg/l

Normal value for fresh water sediment	0,16	mg/kg/d
Normal value for marine water sediment	0,016	mg/kg/d
Normal value of STP microorganisms	10	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation.			5 mg/m3	VND			8,3 mg/m3	VND

BUTYLGLYCOL ACETATE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	133	20	333	50	SKIN
OEL	IRL	133	20	333	50	SKIN
TLV-ACGIH		131	20			
WEL	UK	133	20	332	50	SKIN

Predicted no-effect concentration - PNEC.

Normal value for the food chain (secondary poisoning)	0,06	g/kg
Normal value for the terrestrial compartment	0,06	g/kg
Normal value in fresh water	0,304	mg/l
Normal value for water, intermittent release	0,56	mg/l
Normal value in marine water	0,0304	mg/l
Normal value for fresh water sediment	2,03	mg/l
Normal value for marine water sediment	0,203	mg/l
Normal value of STP microorganisms	90	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.	VND	18 mg/kg/d	VND	4,3 mg/kg/d				
Inhalation.	166 mg/m3	499 mg/m3	VND	67 mg/m3	333 mg/m3	773 mg/m3	VND	133 mg/m3
Skin.			VND	36 mg/kg/d	102 mg/kg/d	27 mg/kg/d	VND	102 mg/kg/d

COPPER

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
OEL	IRL	1		2	
TLV-ACGIH		0,2			
WEL	UK	1		2	

Predicted no-effect concentration - PNEC.

Normal value for the terrestrial compartment	65,5	mg/kg
Normal value in fresh water	0,0078	mg/l
Normal value in marine water	0,0052	mg/l
Normal value for fresh water sediment	87	mg/kg
Normal value for marine water sediment	676	mg/kg
Normal value of STP microorganisms	0,23	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation.	VND	20 mg/m3			VND	20 mg/m3		
Skin.	VND	273 mg/kg			VND	273 mg/kg	VND	137 mg/kg

HYDROCARBONS, C10-C13, n-alkanes, isoalkanes, CYCLIC, <2% AROMATIC

Threshold Limit Value.

Type	Country	TWA/8h	STEL/15min

	mg/m3	ppm	mg/m3	ppm
TLV-ACGIH	1200	184		

ZINC POWDER - ZINC DUST

Predicted no-effect concentration - PNEC.

Normal value for the terrestrial compartment	35,6	mg/kg
Normal value in fresh water	0,0206	mg/l
Normal value in marine water	0,0061	mg/l
Normal value for fresh water sediment	117,8	mg/kg
Normal value for marine water sediment	56,5	mg/kg
Normal value of STP microorganisms	0,052	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.			VND	0,83 mg/kg				
Inhalation.			VND	2,5 mg/m3			VND	5 mg/m3
Skin.			VND	83 mg/kg			VND	83 mg/kg

2-METHOXY-1-METHYLETHYL ACETATE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	275	50	550	100	SKIN
OEL	IRL	275	50	550	100	SKIN
WEL	UK	274	50	548	100	

Predicted no-effect concentration - PNEC.

Normal value for the terrestrial compartment	0,29	mg/kg
Normal value in fresh water	0,635	mg/l
Normal value for water, intermittent release	6,35	mg/l
Normal value in marine water	0,0635	mg/l
Normal value for fresh water sediment	3,29	mg/kg
Normal value for marine water sediment	0,329	mg/l
Normal value of STP microorganisms	100	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.			VND	1,67 mg/kg				
Inhalation.			VND	33 mg/m3			VND	272 mg/m3
Skin.			VND	54,8 mg/kg			VND	153,5 mg/kg

METHANOL

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	260	200			SKIN
OEL	IRL	260	200			SKIN
TLV-ACGIH		262	200	328	250	
WEL	UK	266	200	333	250	SKIN

Predicted no-effect concentration - PNEC.

Normal value for the terrestrial compartment	23,5	mg/kg
Normal value in fresh water	154	mg/l
Normal value for water, intermittent release	1540	mg/l
Normal value in marine water	15,4	mg/l
Normal value for fresh water sediment	570,4	mg/kg
Normal value of STP microorganisms	100	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers. Acute local	Acute systemic	Chronic local	Chronic systemic	Effects on workers Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation.	50 mg/m3	50 mg/m3	50 mg/m3	50 mg/m3	260 mg/m3	260 mg/m3	260 mg/m3	260 mg/m3
Skin.	VND	8 mg/kg/d	VND	8 mg/kg/d	VND	40 mg/kg/d	VND	40 mg/kg/d

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION
Wear category I professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

Consider the appropriateness of providing antistatic clothing in the case of working environments in which there is a risk of explosion.

EYE PROTECTION
Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS.

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	liquid
Colour	various
Odour	typical of solvent
Odour threshold.	Not available.
pH.	Not available.
Melting point / freezing point.	Not available.
Initial boiling point.	> 140 °C.
Boiling range.	Not available.
Flash point.	> 23 °C.
Evaporation Rate	Not available.
Flammability of solids and gases	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	Not available.
Solubility	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information.

Information not available.

SECTION 10. Stability and reactivity.

10.1. Reactivity.

There are no particular risks of reaction with other substances in normal conditions of use.

1-METHOXY-2-PROPANOL ACETATE: stable but with the air it may slowly develop peroxides that explode with an increase in temperature.
4-HYDROXY-4-METHYLPENTAN-2-ONE: decomposes at tempratures above 90°C.
CYCLOHEXANONE: may condense under the effect of heat to form resinous compounds. Attacks various types of plastic.

10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions.

The vapours may also form explosive mixtures with the air.

ZINC POWDER - ZINC DUST: risk of explosion on contact with: ammonium nitrate, ammonium sulphide, barium peroxide, lead nitride, chlorates, chromium trioxide, sodium hydroxide solutions, oxidising agents, performic acid, acids, tetrachloromethane, water. May react dangerously with alkali hydroxides, bromine pentafluoride, calcium chloride solution, fluorine, hexachloroethane, nitrobenzene, potassium dioxide, carbon disulphide, silver. Reacts with acids and strong alkalis developing hydrogen.
1-METHOXY-2-PROPANOL ACETATE: may react violently with oxidising agents and strong acids and alkaline metals.
4-HYDROXY-4-METHYLPENTAN-2-ONE: risk of explosion on contact with the air and sources of heat. Can react dangerously with: alkaline metals, amines, oxidising agents, acids.
CYCLOHEXANONE: risk of explosion on contact with: hydrogen peroxide, nitric acid, heat, mineral acids. Can react violently with oxidising agents. Forms explosive mixtures with the air.

10.4. Conditions to avoid.

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

1-METHOXY-2-PROPANOL ACETATE: store in an inert atmosphere, sheletered from moisture because it hydrolises easily.
4-HYDROXY-4-METHYLPENTAN-2-ONE: avoid exposure to light, sources of heat and naked flames.
CYCLOHEXANONE: avoid exposure to sources of heat and naked flames.

10.5. Incompatible materials.

ZINC POWDER - ZINC DUST: water, strong alkalis and acids.
1-METHOXY-2-PROPANOL ACETATE: oxidising agents, strong acids and alkaline metals.

10.6. Hazardous decomposition products.

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

SECTION 11. Toxicological information.

11.1. Information on toxicological effects.

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.
The introduction of even small quantities of this liquid into the respiratory system in case of ingestion or vomit may cause bronchopneumonia and pulmonary edema.
Acute effects: stinging eyes. Symptoms may include: rubescence, edema, pain and lachrymation.
Vapour inhalation may moderately irritate the upper respiratory trait. Contact with skin may cause slight irritation.
Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

1-METHOXY-2-PROPANOL ACETATE: the main way of entry is the skin, whereas the respiratory way is less important owing to the low vapour tension of the product. Concentrations above 100 ppm cause eye irritation, nose and oropharynx. At 1000 ppm disturbance in the equilibrium and severe eye irritation is observed. Clinical and biological examinations carried out on exposed volunteers revealed no anomalies. Acetate produces greater skin and ocular irritation on direct contact. No chronic effects have been reported in man.

METHANOL: The minimal lethal dose following ingestion is considered to be in the range of 300-1000 mg/kg. Ingestion of as little as 4-10 ml methanol in adults may cause permanent blindness (IPCS).

4-HYDROXY-4-METHYLPENTAN-2-ONE: its acute toxicity is manifested by eye irritation, nose and throat in man at 100 ppm (476 mg/kg) and by pulmonary disorders at 400 ppm. No chronic effects have been reported in man.

HYDROCARBONS, C10-C13, n-alkanes, isoalkanes, CYCLIC, <2% AROMATIC
LD50 (Oral). > 5000 mg/kg bw Rat
LD50 (Dermal). > 2000 mg/kg bw Rat
LC50 (Inhalation). > 50000 mg/m3 8h Rat

ALUMINIUM POWDER (STABILIZED)
LC50 (Inhalation). > 5 mg/l Ratto / Rat (4h)

ZINC POWDER - ZINC DUST
LD50 (Oral). > 2000 mg/Kg Ratto / Rat
LC50 (Inhalation). 5,41 mg/l Ratto / Rat (4h)

2-METHOXY-1-METHYLETHYL ACETATE
LD50 (Oral). > 5000 mg/kg Ratto / Rat
LD50 (Dermal). > 2000 mg/kg Ratto / Rat
LC50 (Inhalation). > 4345 ppm/6h Ratto / Rat

METHANOL
LD50 (Oral). > 1000 mg/Kg Ratto / Rat
LD50 (Dermal). 11700 mg/Kg Coniglio / Rabbit

4-HYDROXY-4-METHYLPENTAN-2-ONE
LD50 (Oral). 4000 mg/kg Rat
LC50 (Inhalation). > 7600 mg/l Ratto / Rat

CYCLOHEXANONE
LD50 (Oral). > 1535 mg/Kg Ratto / Rat
LD50 (Dermal). 948 mg/Kg Coniglio / Rabbit
LC50 (Inhalation). > 8000 mg/l Ratto / Rat

BUTYLGLYCOL ACETATE
LD50 (Oral). 2000 mg/Kg Ratto / Rat
LD50 (Dermal). 2000 mg/Kg Coniglio / Rabbit

Aromatic hydrocarbons, C9
LD50 (Oral). > 2000 mg/Kg
LD50 (Dermal). > 2000 mg/Kg
LC50 (Inhalation). > 5 mg/l

DIMETHYL ADIPATE, DIMETHYL GLUTARATE, DIMETHYL SUCCINATE, REACTION MASS
LD50 (Oral). > 5000 mg/kg Rat
LD50 (Dermal). > 2000 mg/kg Rat
LC50 (Inhalation). > 11 mg/l Rat (4h)

SECTION 12. Ecological information.

This product is dangerous for the environment and highly toxic for aquatic organisms.
This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it have negative effects on acquatic environment.

12.1. Toxicity.

HYDROCARBONS, C10-C13, n-alkanes, isoalkanes, CYCLIC, <2% AROMATIC
LC50 - for Fish.
> 1000 mg/l/96h Oncorthyncus mykiss OECD 203
EC50 - for Crustacea.
> 1000 mg/l/48h Daphnia magna

ZINC POWDER - ZINC DUST
LC50 - for Fish.
7,1 mg/l/96h Nothobranchius guentheri
EC50 - for Crustacea.
2,8 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants.
0,015 mg/l/72h Pseudokirchneriella subcapitata

2-METHOXY-1-METHYLETHYL ACETATE
LC50 - for Fish.
134 mg/l/96h Pesce, Oncorhynchus mykiss OECD 203
EC50 - for Crustacea.
> 500 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants.
> 1000 mg/l/72h Selenastrum capricornutum OECD 201
Chronic NOEC for Fish.
47,5 mg/l Oryzias latipes 14 gg OECD 204
Chronic NOEC for Crustacea.
100 mg/l Dapnia magna 21 gg OECD 202

METHANOL
LC50 - for Fish.
15400 mg/l/96h

EC50 - for Crustacea.
> 10000 mg/l/48h

4-HYDROXY-4-METHYLPENTAN-2-ONE
LC50 - for Fish.
> 100 mg/l/96h Fish
EC50 - for Crustacea.
> 1000 mg/l/48h Daphnia magna

CYCLOHEXANONE
EC50 - for Crustacea.
527 mg/l/48h Fish, Pimephales promelas (96h)

BUTYLGLYCOL ACETATE
LC50 - for Fish.
> 10 mg/l/96h Fish 10-100 mg/kg (48h)
EC50 - for Crustacea.
> 100 mg/l/48h Daphnia Magna (24h)
EC50 - for Algae / Aquatic Plants.
> 100 mg/l/72h Scenedesmus subspicatus

Aromatic hydrocarbons, C9
LC50 - for Fish.
> 1 mg/l/96h ALGHE: TOSSICO: 1< LC/EC/IC50 <= 10 mg/l
EC50 - for Crustacea.
> 10 mg/l/48h INVERTEBRATI ACQUATICI: TOSSICO: 1 < LC/EC/IC50 <= 10 mg/l
EC50 - for Algae / Aquatic Plants.
> 100 mg/l/72h PESCE: TOSSICO: 1 < LC/EC/IC50 <= 10 mg/l

DIMETHYL ADIPATE, DIMETHYL GLUTARATE, DIMETHYL SUCCINATE, REACTION MASS
LC50 - for Fish.
> 18 mg/l/96h Fish (Pimephales promelas) (72h)
EC50 - for Crustacea.
> 112 mg/l/48h Daphnia Magna

12.2. Persistence and degradability.

HYDROCARBONS, C10-C13, n-alkanes, isoalkanes, CYCLIC, <2% AROMATIC
Rapidly biodegradable.

2-METHOXY-1-METHYLETHYL ACETATE
Solubility in water.
198000 mg/l
Rapidly biodegradable.

METHANOL
Rapidly biodegradable.

4-HYDROXY-4-METHYLPENTAN-2-ONE
Rapidly biodegradable.

CYCLOHEXANONE
Rapidly biodegradable.

BUTYLGLYCOL ACETATE
Rapidly biodegradable.

Aromatic hydrocarbons, C9
Rapidly biodegradable.

DIMETHYL ADIPATE, DIMETHYL GLUTARATE, DIMETHYL SUCCINATE, REACTION MASS
Rapidly biodegradable.

12.3. Bioaccumulative potential.

2-METHOXY-1-METHYLETHYL ACETATE
Partition coefficient: n-octanol/water.
1,2 mg/l

12.4. Mobility in soil.

Information not available.

12.5. Results of PBT and vPvB assessment.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

Information not available.

SECTION 13. Disposal considerations.

13.1. Waste treatment methods.

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
Avoid littering. Do not contaminate soil, sewers and waterways.
Waste transportation may be subject to ADR restrictions.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information.

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations.These goods must be packed in their original packagings or in packagings made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

Road and rail transport:

ADR/RID Class: 3 UN: 1210

Packing Group:	III
Label:	3
Nr. Kemler:	30
Limited Quantity.	5 L
Tunnel restriction code.	(D/E)
Proper Shipping Name:	PRINTING INK or PRINTING INK RELATED MATERIAL
Special Provision:	640E

Carriage by sea (shipping):

IMO Class:	3	UN:	1210

Packing Group:	III
Label:	3
EMS:	F-E, S-D
Marine Pollutant.	YES
Proper Shipping Name:	PRINTING INK or PRINTING INK RELATED MATERIAL (Aromatic hydrocarbons, C9)

Transport by air:

IATA:	3	UN:	1210
Packing Group:	III		
Label:	3		
Cargo:			
Packaging instructions:	366	Maximum quantity:	220 L
Pass.:			
Packaging instructions:	355	Maximum quantity:	60 L
Special Instructions:	A3, A72		
Proper Shipping Name:	PRINTING INK or PRINTING INK RELATED MATERIAL		
For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.			

SECTION 15. Regulatory information.

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

Seveso category. 9ii, 6

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.

Product.
Point. 3 - 40

Substances in Candidate List (Art. 59 REACH).

None.

Substances subject to authorisarion (Annex XIV REACH).

None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment.

No chemical safety assessment has been processed for the mixture and the substances it contains.

SECTION 16. Other information.

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Liq. 2	Flammable liquid, category 2
Flam. Liq. 3	Flammable liquid, category 3
Flam. Sol. 1	Flammable solid, category 1
Acute Tox. 3	Acute toxicity, category 3
STOT SE 1	Specific target organ toxicity - single exposure, category 1
Acute Tox. 4	Acute toxicity, category 4
Asp. Tox. 1	Aspiration hazard, category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H304	May be fatal if swallowed and enters airways.

H373	May cause damage to organs through prolonged or repeated exposure.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Text of risk (R) phrases mentioned in section 2-3 of the sheet:

R10	FLAMMABLE.
R11	HIGHLY FLAMMABLE.
R20	HARMFUL BY INHALATION.
R20/21	HARMFUL BY INHALATION AND IN CONTACT WITH SKIN.
R22	HARMFUL IF SWALLOWED.
R23/24/25	TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R36	IRRITATING TO EYES.
R37	IRRITATING TO RESPIRATORY SYSTEM.
R38	IRRITATING TO SKIN.
R39/23/24/25	TOXIC: DANGER OF VERY SERIOUS IRREVERSIBLE EFFECTS THROUGH INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R41	RISK OF SERIOUS DAMAGE TO EYES.
R48/22	HARMFUL: DANGER OF SERIOUS DAMAGE TO HEALTH BY PROLONGED EXPOSURE IF SWALLOWED.
R50	VERY TOXIC TO AQUATIC ORGANISMS.
R50/53	VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
R51/53	TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
R65	HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.
R66	REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.
R67	VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation

- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
3. Regulation (EC) 1907/2006 (REACH) of the European Parliament
4. Regulation (EC) 1272/2008 (CLP) of the European Parliament
5. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
6. Regulation (EC) 453/2010 of the European Parliament
7. Regulation (EC) 286/2011 (II Atp. CLP) of the European Parliament
8. Regulation (EC) 618/2012 (III Atp. CLP) of the European Parliament
9. The Merck Index. - 10th Edition
10. Handling Chemical Safety
11. Niosh - Registry of Toxic Effects of Chemical Substances
12. INRS - Fiche Toxicologique (toxicological sheet)
13. Patty - Industrial Hygiene and Toxicology
14. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
15. ECHA website

FOR PROFESSIONAL USE ONLY

This safety data sheet is prepared in accordance with the instructions provided on the relevant safety data sheets by our suppliers.

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 07 / 08 / 09 / 10 / 11 / 12 / 15 / 16.