SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Issue Date 21-Feb-2019 **Revision Date** 21-Feb-2019 **Version** 1

1. Identification

1.1. Product identifier

Product Name EFI-3M SUPERRANGE XF V3 INK

Contains 2-[[(butylamino)carbonyl]oxy]ethyl acrylate, Tetrahydrofurfuryl Acrylate, Vinyl caprolactam, 2-Propenoic acid, 4-(1,1-dimethylethyl)cyclohexyl ester

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

Recommended Use Printing inks

1.3. Details of the supplier of the safety data sheet

Importer
EFI-B.V.
Tupolevlaan 65
1119PA Schiphol-Rijk
The Netherlands

Manufacturer
Electronics for Imaging
12 Innovation Way
Londonderry, NH 03053
603-285-9800

For further information, please contact
Email address ehs@efi.com

1.4. Emergency telephone number

Emergency Telephone Chemtrec +1-800-424-9300

Emergency Telephone - 24 Hour Emergency Phone Number - Chemtrec International +1-703-527-3887	
Europe	**112**
Netherlands	+31 (0)20 658 8000

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute toxicity - Oral	Category 4 - (H302)
Acute toxicity - Inhalation (Vapors)	Category 4 - (H332)
Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 1 - (H318)
Skin sensitization	Category 1A - (H317)
Reproductive toxicity	Category 1B - (H360)
Specific target organ toxicity (single exposure)	Category 3 - (H335)
Specific target organ toxicity (repeated exposure)	Category 1 - (H372)
Chronic aquatic toxicity	Category 3 - (H412)

2.2. Label elements

Contains 2-[[(butylamino)carbonyl]oxy]ethyl acrylate, Tetrahydrofurfuryl Acrylate, Vinyl caprolactam, 2-Propenoic acid, 4-(1,1-dimethylethyl)cyclohexyl ester

Signal word
Danger

Hazard statements
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H360 - May damage fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P404 - Store in a closed container
P501 - Dispose of contents/containers in accordance with local regulations

2.3. Other hazards
No information available

3. Composition/information on ingredients

3.1 Substances

Not applicable

Chemical name	EC No.	CAS No.	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Tetrahydrofurfuryl Acrylate	219-268-7	2399-48-6	10-25	Skin Sens. 1B (H317) Repro. 1B (H360) Eye Dam. 1 (H318) Skin Corr. 1C (H314) Acute Tox. 4 (H302)	01-2120738396-46
2-[[(butylamino)carbonyl]oxy]ethyl acrylate	264-036-0	63225-53-6	10-25	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) Acute Tox. 3 (H331)	01-2120751208-56
Vinyl caprolactam	218-787-6	2235-00-9	5-15	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Eye Irrit. 2 (H319) Skin Sens. 1B (H317) STOT RE 1 (H372)	01-2119977109-27
2-Propenoic acid, 4-(1,1-dimethylethyl)cyclohexyl ester	282-104-8	84100-23-2	5-15	Skin Sens. 1A (H317) Aquatic Chronic 2 (H411) STOT SE 3 (H335)	01-2120735441-62

				Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	
Trimethylbenzoyldiphenyl Phosphine Oxide	278-355-8	75980-60-8	5-15	Repr. 2 (H361)	01-2119972295-29
Aliphatic Urethane Acrylate	641-075-5	52404-33-8	1-10	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)	Polymer exemption
Propoxylated neopentyl glycol diacrylate	617-546-6	84170-74-1	1-10	Skin Sens. 1B (H317) Aquatic Chronic 2 (H411)	01-2119970213-43
1,6-Hexanediol diacrylate	235-921-9	13048-33-4	1-10	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317)	01-2119484737-22
Isobornyl Acrylate	227-561-6	5888-33-5	1-10	Skin Sens. 1B (H317) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411)	01-2119957862-25
2-Phenoxyethyl acrylate	256-360-6	48145-04-6	0.1-0.5	Skin Sens. 1A (H317) Aquatic Chronic 2 (H411) Repr. 2 (H361)	01-2119980532-35
Poly[oxy(methyl-1,2-ethanediyl)], a,a',a''-1,2,3-propanetriyltris[w-[(1-oxo-2-propenyl)oxy]-	500-114-5	52408-84-1	0.1-0.5	Skin Sens. 1B (H317) Eye Irrit. 2 (H319)	01-2119487948-12
Tetrahydrofurfuryl alcohol	202-625-6	97-99-4	0.1-0.5	Eye Irrit. 2 (H319) Repr. 1B (H360)	01-2119968921-26

Full text of H- and EUH-phrases: see section 16

4. First-aid measures

4.1. Description of first aid measures

Inhalation Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician.

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

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Ingestion If swallowed, call a poison control center or physician immediately. Do NOT induce vomiting. Rinse mouth.

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

Symptoms May cause allergic skin reaction.

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

Note to physicians Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Carbon dioxide (CO2). Foam. Water. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Thermal decomposition can lead to release of irritating and toxic gases and vapors.

5.3. Advice for firefighters

Special protective equipment for fire-fighters In the event of fire and/or explosion do not breathe fumes.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ventilate affected area. Avoid breathing vapors or mists. Evacuate personnel to safe areas.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas.

6.3. Methods and material for containment and cleaning up

Methods for containment Dike to collect large liquid spills.

Methods for cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

7. Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Use only with adequate ventilation. Avoid contact with skin, eyes or clothing. Use personal protection recommended in Section 8.

General hygiene considerations Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep away from heat. Incompatible with oxidizing agents.

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

8. Exposure controls/personal protection

8.1. Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) Vinyl Caprolactam: Long term exposure, local effects inhalation (LTLI): 0.17 mg/m^3; Long term exposure, systemic effects, inhalation (LTSI): 4.9 mg/m^3; Long term exposure, systemic effects, dermal (LTSD): 0.7 mg/kg

Derived No Effect Level (DNEL) Tetrahydrofurfuryl Acrylate: Inhalation - 1,73 mg/m^3; Skin contact - 4,9 mg/kg.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering controls Ensure adequate ventilation, especially in confined areas. Showers. Eyewash stations.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). If splashes are likely to occur: Tight sealing safety goggles.

Hand protection All personal protection equipment should be chosen according to the CEN standards. Avoid contact with skin. Wear protective nitrile rubber gloves.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection In case of inadequate ventilation wear respiratory protection.

Organic gases and vapors filter conforming to EN 14387.

General hygiene considerations Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	viscous
Color	Multiple Colors
Odor	Slight.
Odor threshold	No information available

Property	Values	Remarks • Method
pH	No data available	None known
Melting point / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash point	>93 °C	Pensky-Martens Closed Cup (PMCC)
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive	No data available	

limits		
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	1.087	
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition Coefficient (n-octanol/water)	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No information available	
Oxidizing properties	No information available	

9.2. Other information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	0.02
Liquid Density	No information available
Bulk density	No information available

10. Stability and reactivity

10.1. Reactivity

Remarks Incompatible with oxidizing agents.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Incompatible materials Strong oxidizing agents.

10.6. Hazardous decomposition products

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information Mixture classified as an irritant based on OECD 404 test data.

Inhalation May cause irritation of respiratory tract.

Eye contact Severely irritating to eyes. May cause burns.

Skin contact Irritating to skin.

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Numerical measures of toxicity
No information available

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral) 1,404.00 mg/kg
ATEmix (dermal) 7,392.00 mg/kg
ATEmix (inhalation-vapor) 17.00 mg/l

Unknown acute toxicity 5.05 % of the mixture consists of ingredient(s) of unknown toxicity.
5.05 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.
5.05 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
5.05 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
5.05 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
5.05 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Tetrahydrofurfuryl Acrylate	551 mg/kg (rat)	3636 mg/kg (rat)	
Vinyl caprolactam	1.114 mg/kg, Rat	1.700 mg/kg, Rabbit	> 1,6 mg/l, 8 h, Rat
Trimethylbenzoyldiphenyl Phosphine Oxide (TPO)	> 5000 mg/kg (rat)		
Propoxylated neopentyl glycol diacrylate	(Rat) LD0 > 5,000 mg/kg. (No mortality)	(Rabbit) LD50 > 5,000 mg/kg (Rat) LD50 > 2,000 mg/kg.	(Rat) 4 h LC0 > 2 mg/l. (No mortality)
1,6-Hexanediol diacrylate	= 5 g/kg (Rat)	= 3600 µL/kg (Rabbit) = 3600 mg/kg (Rabbit)	
Isobornyl Acrylate	4890 mg/kg (Rat)	> 5 g/kg (Rabbit) >5,000 mg/kg.	
2-Phenoxyethyl acrylate	= 4660 µL/kg (Rat)	= 2540 µL/kg (Rabbit)	
Tetrahydrofurfuryl alcohol	= 1600 mg/kg (Rat)		

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

Chemical name	European Union
Trimethylbenzoyldiphenyl Phosphine Oxide	Repr. 2
Tetrahydrofurfuryl alcohol	Repr. 1B

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. Ecological information

12.1. Toxicity

Ecotoxicity The environmental impact of this product has not been fully investigated.

Unknown aquatic toxicity Contains 65.55 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Vinyl caprolactam	EC 50: > 100 mg/l, 72 h, 72 h, Desmodesmus subspicatus (green algae), static test, Directive 67/548/EEC, Annex V, C.3.	LC 50: 318 mg/l, 96 h, Danio rerio (zebra fish), static test, OECD Test Guideline 203	-	EC50: > 100 mg/l, 48 h, Water flea (Daphnia magna), static test, Directive 67/548/EEC, Annex V, C.2.
Propoxylated neopentyl glycol diacrylate	Harmful. Pseudokirchneriella subcapitata (green algae) 72 h ErC50 (Growth inhibition) 11 mg/l	Toxic. Danio rerio (zebra fish) 96 h LC50 2.7 mg/l	-	Harmful. Daphnia magna (Water flea) 48 h EC50 37 mg/l
2-Phenoxyethyl acrylate	EC50, 72 h (Desmodesmus subspicatus (green algae)) : 4,4 mg/l (Method: ISO 8692, Growth inhibition)	LC50, 24 h (Leuciscus idus) : 10 mg/l (Method: OECD Test Guideline 203)	-	EC50, 48 h (Daphnia magna (Water flea)) : 1,21 mg/l (Method: OECD Test Guideline 202)
Tetrahydrofurfuryl alcohol	-	3400: 48 h Chaetodonoides mg/L LC50	-	-

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

12.6. Other adverse effects

Other adverse effects No information available.

13. Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse container.

14. Transport information

Note: This material is not subject to regulation as a hazardous material for shipping

IMDG

14.1 UN number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	No information available

ADR

14.1 UN number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA

14.1 UN number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

15. Regulatory information

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Persistent Organic Pollutants
Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

International Inventories

TSCA	Complies

DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Complies
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AICS	Contact supplier for inventory compliance status

MAL Code (1993): 3-5.

Legend:
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 Chemical Substances/European 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

15.2. Chemical safety assessment

Chemical Safety Report	No information available

16. Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H335 - May cause respiratory irritation
H360 - May damage fertility or the unborn child
H361 - Suspected of damaging fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Legend
SVHC: Substances of Very High Concern for Authorization:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Issue Date	21-Feb-2019
Revision Date	NA

EFI has prepared this Safety Data Sheet (SDS) in compliance with Regulation (EC) No. 1272/2008, understands that its customers may use this SDS to comply with that section, and believes that the data set forth herein are accurate as of the date hereof; however, this SDS shall not constitute a warranty with respect thereto.

End of Safety Data Sheet