

**Safety Data Sheet**

according to the Hazard Communication Standard (CFR29 1910.1200)

HazCom 2012

Date of issue: 06/11/2025

Version: 2.0

Reviewed on 06/11/2025

**1 Identification****Product identifier****Product name:** IRF4 UV-LED Ink, Clear**Other means of identification****Article number:** I-4113**Application of the substance / the mixture:** Printing inks**Details of the supplier of the safety data sheet**

Direct Color Systems

99 Hammer Mill Rd.

Rocky Hill, CT 06067-USA

**Manufacturer/Supplier:**

Direct Color Systems

99 Hammer Mill Rd.

Rocky Hill, CT 06067-USA

**Emergency telephone number US:** 24/7 CHEMTREC 1-800-424-9300**Emergency telephone number International:** 24/7 CHEMTREC +1 703-527-3887**\* 2 Hazard(s) identification****Classification of the substance or mixture**

Acute toxicity - oral 4 H302 Harmful if swallowed.

Sensitization - skin 1 H317 May cause an allergic skin reaction.

Reproductive toxicity 1B H360 May damage fertility or the unborn child.

**Label elements****GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).**Hazard pictograms**

GHS07 GHS08

**Signal word** Danger**Hazard-determining components of labeling:**

2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

propylidynetrimethanol, ethoxylated, esters with acrylic acid

**Hazard statements**

Harmful if swallowed.

May cause an allergic skin reaction.

May damage fertility or the unborn child.

**Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Contaminated work clothing must not be allowed out of the workplace.

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Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin: Wash with plenty of water.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

## Classification according to (d)(1)(ii) of § 1910.1200

The SDS issuer does not object to the classifications provided by importers or manufacturers of precursor products.

## Hazards not otherwise classified

There are no adverse physical or health effects known that are not covered by the hazard classes of the Hazard Communications Standard.

## 3 Composition/information on ingredients

### Chemical characterization: Mixtures

**Description:** Mixture of the substances listed below with nonhazardous additions.

### Dangerous components:

86273-46-3	2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester	≥ 50 - ≤ 100%
	Acute toxicity - oral 4, H302; Sensitization - skin 1, H317	
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	2.5 - 10%
	Reproductive toxicity 1B, H360; Sensitization - skin 1B, H317	
	Ethanol, 2-amino-, polymer with α-hydro-ω-[(1-oxo-2-propen-1-yl)oxy]poly(oxy-1,2-ethanediy) ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)	2.5 - 10%
	Skin irritation 2, H315; Eye irritation 2A, H319	
28961-43-5	propylidynetrimethanol, ethoxylated, esters with acrylic acid	≤ 2.5%
	Eye irritation 2A, H319; Sensitization - skin 1, H317	

## 4 First-aid measures

### Description of first aid measures

**After inhalation:** Supply fresh air; consult doctor in case of complaints.

**After skin contact:** Generally the product does not irritate the skin.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** If symptoms persist consult doctor.

**Most important symptoms and effects, both acute and delayed** No further relevant information available.

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

## 5 Fire-fighting measures

### Extinguishing media

**Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

**Special hazards arising from the substance or mixture** No further relevant information available.

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## Advice for firefighters

**Protective equipment:** No special measures required.

## 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Not required.

**Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

### Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

### Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## 7 Handling and storage

### Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

**Information about protection against explosions and fires:** No special measures required.

### Conditions for safe storage, including any incompatibilities

#### Storage:

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** None.

**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

### Control parameters

#### Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**Additional information:** The lists that were valid during the creation were used as basis.

### Exposure controls

**Appropriate engineering controls** No further data; see section 7.

#### Personal protective equipment:

##### General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

##### Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

##### Protection of hands:



Protective gloves

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

## Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

## Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:** Goggles recommended during refilling.

## \* 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

Physical state	Liquid
Color:	Clear
Odor:	Characteristic
Odor threshold:	Not determined.
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
Flammability:	Not applicable.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Flash point:	> 100 °C (> 212 °F)
Decomposition temperature:	Not determined.
pH-value:	Not determined.
Viscosity:	
Kinematic:	Not determined.
Dynamic:	Not determined.
Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
Partition coefficient (n-octanol/water):	Not determined.
Vapor pressure:	Not determined.
Vapor pressure:	
Density:	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Particle characteristics	Not applicable.

#### Other information

Appearance:	
Form:	Liquid
<b>Important information on protection of health and environment, and on safety.</b>	
Ignition temperature:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
<b>Change in condition</b>	
Evaporation rate	Not determined.

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## 10 Stability and reactivity

**Reactivity** No further relevant information available.

### Chemical stability

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known.

## \* 11 Toxicological information

### Information on toxicological effects

#### Acute toxicity:

**LD/LC50 values that are relevant for classification:**

#### ATE (Acute Toxicity Estimate)

Oral LD50 557 - 565 mg/kg

#### 86273-46-3 2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester

Oral LD50 500 mg/kg (ATE)

#### Primary irritant effect:

**on the skin:** No irritant effect.

**on the eye:** No irritating effect.

**Sensitization:** No sensitizing effects known.

#### Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

**Interactive effects** No interactive effects between components are known.

#### Carcinogenic categories

**IARC (International Agency for Research on Cancer)**

108-88-3 Toluene: 3

**NTP (National Toxicology Program)**

None of the ingredients is listed.

**OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

#### Alternative sources for toxicological information

No non-standard sources for toxicological information where used.

## 12 Ecological information

### Toxicity

**Aquatic toxicity:** No further relevant information available.

**Persistence and degradability** No further relevant information available.

**Bioaccumulative potential** No further relevant information available.

**Mobility in soil** No further relevant information available.

### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

### Other adverse effects

#### Additional ecological information:

#### General notes:

Water hazard class 2 (Self-assessment): hazardous for water

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Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.

## 13 Disposal considerations

### Waste treatment methods

#### Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

#### Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

### UN-Number

**DOT, ADN, IMDG, IATA** not regulated

### UN proper shipping name

**DOT, ADN, IMDG, IATA** not regulated

### Transport hazard class(es)

**DOT, ADN, IMDG, IATA**  
**Class** not regulated

### Packing group

**DOT, IMDG, IATA** not regulated

### Environmental hazards:

Not applicable.

### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

### Special precautions for user

Not applicable.

### UN "Model Regulation":

not regulated

## \*15 Regulatory information

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

No further relevant information available.

#### SARA

##### Section 355 (extremely hazardous substances):

None of the ingredients is listed.

##### Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

##### TSCA (Toxic Substances Control Act):

86273-46-3 2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester: ACTIVE

75980-60-8 diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide: ACTIVE

28961-43-5 propylidynetrimethanol, ethoxylated, esters with acrylic acid: ACTIVE

##### Hazardous Air Pollutants

67-56-1 methanol

108-88-3 Toluene

#### Proposition 65

##### Chemicals known to cause cancer:

None of the ingredients is listed.

##### Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

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## **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

## **Chemicals known to cause developmental toxicity:**

67-56-1 methanol

108-88-3 Toluene

## **Carcinogenic categories**

### **EPA (Environmental Protection Agency)**

108-88-3 Toluene: II

### **TLV (Threshold Limit Value)**

108-88-3 Toluene: A4

### **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

## **Hazard pictograms**



GHS07 GHS08

**Signal word** Danger

## **Hazard-determining components of labeling:**

2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester  
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide  
propylidynetrimethanol, ethoxylated, esters with acrylic acid

## **Hazard statements**

Harmful if swallowed.

May cause an allergic skin reaction.

May damage fertility or the unborn child.

## **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin: Wash with plenty of water.

If exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

### Relevant phrases

H302 Harmful if swallowed.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

**Department issuing SDS:** Environment, Health, and Safety Department.

**Contact:** Environmental, Health, and Safety Department

**Date of previous version** 02/05/2024

**Version number of previous version:** 1.0

**Date of preparation** 06/11/2025

### Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute toxicity - oral 4: Acute toxicity – Category 4

Skin irritation 2: Skin corrosion/irritation – Category 2

Eye irritation 2A: Serious eye damage/eye irritation – Category 2A

Sensitization - skin 1: Skin sensitisation – Category 1

Sensitization - skin 1B: Skin sensitisation – Category 1B

Reproductive toxicity 1B: Reproductive toxicity – Category 1B

**\* Data compared to the previous version altered.**