

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

1.1. Product identifier

Product Identity Chromasphere White UV Curable
Alternate Names
Unique Formula Identifier

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

Intended Uses and Uses Advised Against See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name Direct Color Systems
99 Hammermill Rd.
Rocky Hill, CT 06067
Customer Service: Direct Color Systems 860-829-2244

1.4. Emergency telephone number

Emergency
24 hour Emergency Telephone No. 24/7 CHEMTREC 800-424-9300

Section 2. Hazard identification of the product

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Acute toxicity(oral), category 4;H302	Harmful if swallowed.
Skin corrosion/irritation category 2;H315	Causes skin irritation.
Serious eye damage / eye irritation, category 2;H319	Causes serious eye irritation.
Skin sensitizer category 1;H317	May cause an allergic skin reaction.
Single target organ toxicity, repeated exposure category 1;H372	Causes damage to organs through prolonged or repeated exposure.

Aquatic toxicity (chronic), category 3;H412 Harmful to aquatic life with long lasting effects.

2.2. Label elements

According to REGULATION (EU) 2020/878 amending Regulations EU 2015/830 and (EC) No 1907/2006



Warning

H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H372 Causes damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

P260 Do not breathe dust, fume, mist, vapors or spray.
P273 Avoid release to the environment.
P261 Avoid breathing dust, fume, gas, mist, vapors, spray.
P280 Wear protective gloves, eye protection, and face protection.
P302+352 IF ON SKIN: Wash with plenty of soap and water.
P312 Call a POISON CENTER, doctor or physician if you feel unwell.

2.3. Other hazards

This product contains no PBT/vPvB/vPvM chemicals.
This product contains no endocrine disrupting chemicals.

Section 3. Composition/information on ingredients

3.2. Mixtures

If the product contains substances that present a hazard according to Regulation (EC) No. 1272/2008 [CLP/GHS], they are listed below.

Ingredient/Chemical Designations	Weight %	EC No. 1272/2008 Classification	Notes
2-propenoic acid, 3,3,5-trimethylcyclohexyl ester CAS Number: 86178-38-3	15 -25		
Pentaerythritol, ethoxylated, esters with acrylic acid CAS Number: 51728-26-8 EC No. 500-111-9	10 - 15	Eye Dam. 2;H319 Skin corrosion/irritation category 2;H315	
2-Propenoic acid, 2-[2-(ethenyloxy)ethoxy]ethyl ester CAS Number: 86273-46-3 EC No. 451-690-9	10 - 20	Acute toxicity(oral), category 4;H302 Skin sensitizer category 1;H317 Aquatic toxicity (chronic), category 3;H412	
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate CAS Number: 84434-11-7 EC No. 282-810-6 REACH #: 01-2119987994-10	10 - 20	Skin sensitizer category 1B;H317 Aquatic toxicity (chronic), category 2;H411	
2h-azepin-2-one, 1-ethenylhexahydro- CAS Number: 2235-00-9	10 - 13	Acute toxicity(oral), category 4;H302 Serious eye damage / eye irritation, category 2;H319 Acute toxicity(dermal), category 4;H312 Single target organ toxicity, repeated exposure category 1;H372	
2-Propenoic acid, (tetrahydro-2-furanyl)methyl ester CAS Number: 2399-48-6 EC No. 219-268-7 REACH #: 01-2120738396-46	7 - 10	Skin corrosion/irritation category 2;H315 Serious eye damage / eye irritation, category 2;H319	
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-[(1-oxo-2-propenyl)oxy] - CAS Number: 84170-74-1	4 - 7	Not Classified	
Ethoxylated trimethylolpropane triacrylate CAS Number: 28961-43-5 EC No. 500-066-5	4 - 5	Serious eye damage / eye irritation, category 2;H319 Skin sensitizer category 1;H317	

[^]CLP³¹ Reference EC No. 1272/2008 1.1.3.1. Notes relating to the identification, classification and labelling of substances (Table 3.1).

*PBT/vPvB - PBT, vPvM or vPvB-substance.

The full texts of the phrases are shown in Section 16.

Section 4. First aid measures

4.1. Description of first aid measures

- General** In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
- Inhalation** Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
- Eye** Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.
- Skin** Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
- Ingestion** If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

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

- Overview** No specific symptom data available.
No chronic toxicity or long term toxicity information available. Treat symptomatically. See section 2 for further details.
- Inhalation**
- Eye** Causes serious eye irritation.
- Skin** May cause an allergic skin reaction. Causes skin irritation.
- Ingestion** Harmful if swallowed.

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

- Notes to physician** Treat symptomatically. IF SWALLOWED: Call a POISON CENTER, doctor or physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER, doctor or physician if you feel unwell. Get Medical advice or attention if you feel unwell. Rinse mouth. If skin irritation or a rash occurs: Get medical advice or attention. If eye irritation persists: Get medical advice or attention. Take off contaminated clothing and wash it before reuse.

Section 5. Fire-fighting measures

5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO₂, powder, water spray.
Unsuitable extinguishing media: Do not use; water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: No hazardous decomposition data available.

Do not breathe dust, fume, mist, vapors or spray.

5.3. Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean-up immediately after fire. No smoking.

Section 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).
Do not breathe dust, fume, mist, vapors or spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace.

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.
Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.
Avoid release to the environment. Dispose of contents or container in accordance with local and national regulations.

6.3. Methods and material for containment and cleaning up

Ventilate the area and avoid breathing vapors. Take the personal protective measures

listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, and vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations.

6.4 Reference to other sections

See Section 1 for emergency contact information.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information.

Section 7. Handling and storage

7.1. Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

Wear protective gloves, eye protection, and face protection.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials: No available information

7.3. Specific end use(s)

No available information

Section 8. Exposure controls / personal protection

8.1. Control parameters

Exposure Limits

CAS No.	Ingredient	Source	Value
2235-00-9	2h-azepin-2-one, 1-ethenylhexahydro-	ACGIH	No Established Limit
		DNEL Local Exposure	0.17 mg/m ³
		DNEL Systematic Exposure	4.9 mg/m ³
		National	No Established Limit
2399-48-6	2-Propenoic acid, (tetrahydro-2-furanyl)methyl ester	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit



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CAS No.	Ingredient	Source	Value
		DNEL Systematic Exposure	1.73 mg/m ³
		National	No Established Limit
28961-43-5	Ethoxylated trimethylolpropane triacrylate	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit
		DNEL Systematic Exposure	37 mg/m ³
		National	No Established Limit
51728-26-8	Pentaerythritol, ethoxylated, esters with acrylic acid	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit
		DNEL Systematic Exposure	0.88 mg/m ³
		National	No Established Limit
84170-74-1	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-[(1-oxo-2-propenyl)oxy] -	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit
		DNEL Systematic Exposure	No Established Limit
		National	No Established Limit
84434-11-7	Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit
		DNEL Systematic Exposure	4.93 mg/m ³
		National	No Established Limit
86178-38-3	2-propenoic acid, 3,3,5-trimethylcyclohexyl ester	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit
		DNEL Systematic Exposure	16.45 mg/m ³
		National	No Established Limit
86273-46-3	2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester	ACGIH	No Established Limit
		DNEL Local Exposure	No Established Limit
		DNEL Systematic Exposure	1.97 mg/m ³
		National	No Established Limit

8.2. Exposure controls

Respiratory If workers are exposed to concentrations above the exposure limit they must

	use the appropriate, certified respirators.
Eyes	Protective safety glasses recommended
Skin	Avoid skin contact. Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended: Viton or Nitrile gloves. When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/ specifications provided by the glove supplier. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid
Color	White
Odor	Ester-like
Melting point / freezing point	No available information
Initial boiling point and boiling range	257°F 125°C

Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: No available information Upper Explosive Limit: No available information
Flash Point	437°F 225°C, Test method: (Open/Close cup)
Auto-ignition temperature	No available information
Decomposition temperature	No available information
pH	No available information
Viscosity (cSt)	25cP @ 25C
Solubility in Water	No available information
Partition coefficient n-octanol/water (Log Kow)	No available information
Vapor pressure (Pa)	No available information
Relative Density	No available information
Vapor Density	No available information
Evaporation rate (Ether = 1)	No available information
Oxidising properties	No available information
Explosive properties	No available information

9.2. Other information

No other relevant information.

Section 10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No available information

10.4. Conditions to avoid

Avoid high temperatures and contact with incompatible material

10.5. Incompatible materials

No available information

10.6. Hazardous decomposition products

No hazardous decomposition data available.

Section 11. Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
2h-azepin-2-one, 1-ethenylhexahydro- - (2235-00-9)	1,114.00, Rat - Category: 4	1,800.00, Rabbit - Category: 4	No data available.	No data available.	No data available.
2-Propenoic acid, (tetrahydro-2-furanyl)methyl ester - (2399-48-6)	No data available.	No data available.	No data available.	No data available.	No data available.
Ethoxylated trimethylolpropane triacrylate - (28961-43-5)	>2,000.00, Rat - Category: 5	No data available.	No data available.	No data available.	No data available.
Pentaerythritol, ethoxylated, esters with acrylic acid - (51728-26-8)	No data available.	No data available.	No data available.	No data available.	No data available.
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-[(1-oxo-2-propenyl)oxy]] - - (84170-74-1)	> 5,000.00, Rat - Category: NA	> 2,000.00, Rat - Category: NA	No data available.	No data available.	No data available.
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate - (84434-11-7)	> 5,000.00, Rat - Category: NA	> 2,000.00, Rat - Category: NA	No data available.	No data available.	No data available.
2-propenoic acid, 3,3,5-trimethylcyclohexyl ester - (86178-38-3)	No data available.	No data available.	No data available.	No data available.	No data available.
2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester - (86273-46-3)	No data	No data	No data	No data	No data



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Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
	available.	available.	available.	available.	available.

Classification	Category	Hazard Description
Acute toxicity (oral)	4	Harmful if swallowed.
Acute toxicity (dermal)	---	---
Acute toxicity (inhalation)	---	---
Skin corrosion/irritation	2	Causes skin irritation.
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	---	---
Skin sensitization	1	May cause an allergic skin reaction.
Germ cell mutagenicity	---	---
Carcinogenicity	---	---
Reproductive toxicity	---	---
STOT-single exposure	---	---
STOT-repeated exposure	1	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	---	---

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

This product contains no endocrine disrupting chemicals.

Section 12. Ecological information

12.1. Toxicity

Harmful to aquatic life with long lasting effects.

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L	3hr IC50 Bacteria mg/L	Biodegradability %
2h-azepin-2-one, 1-ethenylhexahydro- - (2235-00-9)	318.00, Danio rerio	>100.00, Daphnia	>100.00, Desmodesmus	---	40.00



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Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L	3hr IC50 Bacteria mg/L	Biodegradability %
		magna	subspicatus		
2-Propenoic acid, (tetrahydro-2-furanyl)methyl ester - (2399-48-6)	No data available.	No data available.	No data available.	---	---
Ethoxylated trimethylolpropane triacrylate - (28961-43-5)	1.95, Danio rerio	70.70, Daphnia magna	2.20, Desmodesmus subspicatus	292.00	60.00
Pentaerythritol, ethoxylated, esters with acrylic acid - (51728-26-8)	No data available.	No data available.	No data available.	---	---
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-(1-oxo-2-propenyl)oxy] - - (84170-74-1)	2.70, Danio rerio	37.00, Daphnia magna	11.00, Pseudokirchneriella subcapitata	---	41.00
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate - (84434-11-7)	1.89, Danio rerio	2.26, Daphnia magna	1.01, Desmodesmus subspicatus	>1,000.00	Not readily biodegradable
2-propenoic acid, 3,3,5-trimethylcyclohexyl ester - (86178-38-3)	No data available.	No data available.	No data available.	---	---
2-Propenoic acid, 2-[2-(ethenoxy)ethoxy]ethyl ester - (86273-46-3)	No data available.	No data available.	No data available.	---	---

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

No available information

12.4. Mobility in soil

No available information

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB/vPvM chemicals.

12.6 Endocrine disrupting properties

This product contains no endocrine disrupting chemicals.

12.7. Other adverse effects

No available information

Section 13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

Section 14. Transport information

	ADR/RID	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Regulated	Not Regulated	Not Applicable
14.2. UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	Class: Not Regulated Sub Class: Not Applicable	Class: Not Regulated Sub Class: Not Applicable	Class: Not Regulated Sub Class: Not Applicable
14.4. Packing group	Not Regulated	Not Regulated	Not Regulated

14.5. Environmental hazards

Marine Pollutant: No;

14.6. Special precautions for user

No available information

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

Not Applicable

Section 15. Regulatory information

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



EU Legislation

REGULATIONS (EU) 2023/707, (EU) 2020/878 amending Regulations EU 2015/830 and (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). REGULATION (EC) 1272/2008 on the classification, labeling and packaging of substances and mixtures (CLP).

Candidate List of SVHC for Authorisation: Not Applicable

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:

Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate (Use restricted. See item 3. (liquid))

15.2. Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16. Other information

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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H372 Causes damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

ACGIH - American Conference of Governmental Industrial Hygienists

ADR - International Carriage of Dangerous Goods by Road (Accord Dangereux Routier)

CAS - Chemical Abstract Service

CLP - Classification Labeling and Packaging

DOT - Department of Transportation

EC50 - European Commission

EC50 - Half maximal effective concentration

ErC50 - The concentration of test substance which results in a 50 percent reduction in growth rate (ErC50) relative to the control within 72hrs exposure.

GHS - Globally Harmonized System

IARC - International Agency for Research on Cancer

IATA - International Civil Aviation Organization

IC50 - The amount of a substance suspended in the air required to kills 50% of a test animals during a predetermined observation period.

ICAO - International Civil Aviation Organization

IMDG - International Maritime Dangerous Goods

IMO - International Maritime Organization

LC50 - Is the Lethal Concentration of a substance at which 50% of test animals die.

LD50 - Is the Lethal Dose at which 50% of the animals will be expected to die.

NIOSH - National Institute for Occupational Safety and Health

NTP - National Toxicology Program

OSHA - Occupational Safety and Health Administration

PBT - Persistent, Bioaccumulative and Toxic Chemicals

PEL - Permissible Exposure Limit

REACH - Registration, Evaluation, Authorization and Restriction of Chemicals

RID - Regulations concerning the international carriage of dangerous goods by rail)

STEL - Short Term Exposure Limit

TWA - Time Weighted Average

vPvB - Very Persistent and very Bio-accumulative

WGK - Water Hazard Class



Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Acute toxicity(oral), category 4;H302	Calculation method
Skin corrosion/irritation category 2;H315	Calculation method
Serious eye damage / eye irritation, category 2;H319	Calculation method
Skin sensitizer category 1;H317	Calculation method
Single target organ toxicity, repeated exposure category 1;H372	Calculation method
Aquatic toxicity (chronic), category 3;H412	Calculation method

Disclaimer: The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

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