



Plexichrome Ultra Performance Light Blue - PLLB

ICP Building Solutions Group

Version No: 1.3

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

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S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	Plexichrome Ultra Performance Light Blue - PLLB
Synonyms	Not Available
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Sports Surface
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	ICP Building Solutions Group
Address	150 Dascomb Road Andover MA United States
Telephone	978-623-9980
Fax	Not Available
Website	www.icpgroup.com
Email	Not Available

Emergency phone number

Association / Organisation	CHEMTEL
Emergency telephone numbers	800-255-3924
Other emergency telephone numbers	813-248-0585

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification	Eye Irritation Category 2A, Specific target organ toxicity - repeated exposure Category 2, Simple Asphyxiant, Carcinogenicity Category 1A
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Label elements

Hazard pictogram(s)	
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SIGNAL WORD	DANGER
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Hazard statement(s)

H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H350	May cause cancer.
	May displace oxygen and cause rapid suffocation

Hazard(s) not otherwise classified

Continued...

Plexichrome Ultra Performance Light Blue - PLLB

Not Applicable

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe mist/vapours/spray.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statement(s) Storage

P405	Store locked up.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
1317-80-2	1-5	<u>titanium dioxide (rutile)</u>
14808-60-7	15-20	<u>silica crystalline - quartz</u>
14464-46-1	1-5	<u>crystalite</u>
1332-58-7	<1	<u>kaolin</u>
25265-77-4	.5-5	<u>2,2,4-trimethyl-1,3-pentanediol monoisobutyrate</u>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 FIRST-AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay.
Ingestion	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIRE-FIGHTING MEASURES

Plexichrome Ultra Performance Light Blue - PLLB

Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Special protective equipment and precautions for fire-fighters

Fire Fighting	<ul style="list-style-type: none"> ▶ When silica dust is dispersed in air, firefighters should wear inhalation protection as hazardous substances from the fire may be adsorbed on the silica particles. ▶ When heated to extreme temperatures, (>1700 deg.C) amorphous silica can fuse. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. Combustion products include: carbon dioxide (CO2) hydrogen iodide silicon dioxide (SiO2) metal oxides other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately.
Major Spills	Moderate hazard. <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE**Precautions for safe handling**

Safe handling	<ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ DO NOT allow clothing wet with material to stay in contact with skin
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Silicas: <ul style="list-style-type: none"> ▶ react with hydrofluoric acid to produce silicon tetrafluoride gas ▶ react with xenon hexafluoride to produce explosive xenon trioxide ▶ reacts exothermically with oxygen difluoride, and explosively with chlorine trifluoride (these halogenated materials are not commonplace industrial materials) and other fluorine-containing compounds ▶ may react with fluorine, chlorates ▶ are incompatible with strong oxidisers, manganese trioxide, chlorine trioxide, strong alkalis, metal oxides, concentrated orthophosphoric acid, vinyl acetate ▶ may react vigorously when heated with alkali carbonates. ▶ Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**Control parameters**

█ OCCUPATIONAL EXPOSURE LIMITS (OEL)

█ INGREDIENT DATA

Continued...

Plexichrome Ultra Performance Light Blue - PLLB

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELS)	titanium dioxide (rutile)	Rutile, Titanium oxide, Titanium peroxide	Not Available	Not Available	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z1	titanium dioxide (rutile)	Titanium dioxide: Total dust	15 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	titanium dioxide (rutile)	Titanium dioxide	10 mg/m3	Not Available	Not Available	LRT irr
US NIOSH Recommended Exposure Limits (RELS)	silica crystalline - quartz	Cristobalite, Quartz, Tridymite, Tripoli	0.05 mg/m3	Not Available	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z3	silica crystalline - quartz	Silica: Crystalline Quartz	10 / (% SiO ₂ + 2) mg/m ³ / 250 / (%SiO ₂ + 5) mppcf	Not Available	Not Available	(Name ((Respirable) ((f) This standard applies to any operations or sectors for which the respirable crystalline silica standard, 1910.1053, is stayed or is otherwise not in effect.)); (TWA mppcf ((b) The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.)); (TWA mg/m ³ ((e) Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics: Aerodynamic diameter (unit density sphere), Percent passing selector 2, 90 2.5, 75 3.5, 50 5.0, 25 10, 0. The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m ³ in the table for coal dust is 4.5 mg/m ³ K.))
US OSHA Permissible Exposure Levels (PELs) - Table Z1	silica crystalline - quartz	Silica, crystalline, respirable dust: Quartz	Not Available	Not Available	Not Available	see 1910.1053; (7) See Table Z-3 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1053 is stayed or is otherwise not in effect.
US ACGIH Threshold Limit Values (TLV)	silica crystalline - quartz	Silica, crystalline -α-quartz and cristobalite (Inhalable fraction and vapor)	0.025 ppm / 0.025 mg/m ³	Not Available	Not Available	Pulm fibrosis; lung cancer
US OSHA Permissible Exposure Levels (PELs) - Table Z3	cristobalite	Silica: Crystalline Cristobalite	Not Available	Not Available	Not Available	(Name (Use 1/2 the value calculated from the count or mass formulae for quartz. ((f) This standard applies to any operations or sectors for which the respirable crystalline silica standard, 1910.1053, is stayed or is otherwise not in effect.))
US OSHA Permissible Exposure Levels (PELs) - Table Z1	cristobalite	Silica, crystalline, respirable dust: Cristobalite	Not Available	Not Available	Not Available	see 1910.1053; (7) See Table Z-3 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1053 is stayed or is otherwise not in effect.
US ACGIH Threshold Limit Values (TLV)	cristobalite	Silica, crystalline -α-quartz and cristobalite (Inhalable fraction and vapor)	0.025 ppm / 0.025 mg/m ³	Not Available	Not Available	Pulm fibrosis; lung cancer
US NIOSH Recommended Exposure Limits (RELS)	kaolin	China clay, Clay, Hydrated aluminum silicate, Hydrite, Porcelain clay [Note: Main constituent of Kaolin is Kaolinite (Al ₂ Si ₂ O ₅ (OH) ₄ .)]	10 (total), 5 (resp) mg/m ³	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	kaolin	Kaolin: Respirable fraction	5 mg/m ³	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	kaolin	Kaolin: Total dust	15 mg/m ³	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	kaolin	Kaolin (Respirable particulate matter)	2 mg/m ³	Not Available	Not Available	Pneumoconiosis

EMERGENCY LIMITS

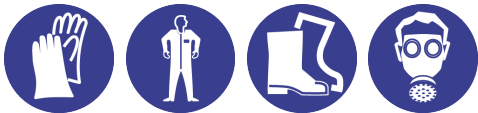
Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
titanium dioxide (rutile)	Titanium oxide; (Titanium dioxide)	30 mg/m ³	330 mg/m ³	2,000 mg/m ³
silica crystalline - quartz	Silica, crystalline-quartz; (Silicon dioxide)	0.075 mg/m ³	33 mg/m ³	200 mg/m ³
cristobalite	Cristobalite	0.075 mg/m ³	33 mg/m ³	200 mg/m ³
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	Trimethyl-1,3-pentanediol monoisobutyrate, 2,2,4-; (Texanol)	13 mg/m ³	140 mg/m ³	840 mg/m ³

Ingredient	Original IDLH	Revised IDLH
titanium dioxide (rutile)	5,000 mg/m ³	Not Available
silica crystalline - quartz	25 mg/m ³ / 50 mg/m ³	Not Available
cristobalite	Not Available	Not Available
kaolin	Not Available	Not Available

Plexichrome Ultra Performance Light Blue - PLLB

2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	Not Available	Not Available
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Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical 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.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C.

Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

If inhalation risk above the TLV exists, wear approved dust respirator.

Use respirators with protection factors appropriate for the exposure level.

- ▶ Up to 5 X TLV, use valveless mask type; up to 10 X TLV, use 1/2 mask dust respirator
- ▶ Up to 50 X TLV, use full face dust respirator or demand type C air supplied respirator
- ▶ Up to 500 X TLV, use powered air-purifying dust respirator or a Type C pressure demand supplied-air respirator
- ▶ Over 500 X TLV wear full-face self-contained breathing apparatus with positive pressure mode or a combination respirator with a Type C positive pressure supplied-air full-face respirator and an auxiliary self-contained breathing apparatus operated in pressure demand or other positive pressure mode
- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Light sensitive.		
Physical state	Liquid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
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Plexichrome Ultra Performance Light Blue - PLLB

Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	<p>There is strong evidence to suggest that this material can cause, if inhaled once, very serious, irreversible damage of organs. The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.</p> <p>There is strong evidence to suggest that this material can cause, if swallowed once, very serious, irreversible damage of organs. There is strong evidence to suggest that this material, on a single contact with skin, can cause very serious, irreversible damage of organs.</p>
Ingestion	<p>There is strong evidence to suggest that this material can cause, if swallowed once, very serious, irreversible damage of organs. The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.</p>
Skin Contact	<p>There is strong evidence to suggest that this material, on a single contact with skin, can cause very serious, irreversible damage of organs. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.</p> <p>There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Open cuts, abraded or irritated skin should not be exposed to this material.</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
Eye	This material can cause eye irritation and damage in some persons.
Chronic	<p>Studies show that inhaling this substance for over a long period (e.g. in an occupational setting) may increase the risk of cancer. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Prolonged inhalation of high concentrations of magnesite (magnesium carbonate) dust caused pulmonary deposition and retention. Roasted magnesite (magnesium oxide) produced a greater degree of fibrosis than did crude magnesite.</p> <p>Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections.</p> <p>There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.</p>

Plexichrome Ultra Performance Light Blue - PLLB	TOXICITY	IRRITATION
	Not Available	Not Available
titanium dioxide (rutile)	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	Eye: no adverse effect observed (not irritating) ^[1]
		Skin: no adverse effect observed (not irritating) ^[1]
silica crystalline - quartz	TOXICITY	IRRITATION
	Oral (rat) LD50: =500 mg/kg ^[2]	Not Available
cristobalite	TOXICITY	IRRITATION
	Not Available	Not Available
kaolin	TOXICITY	IRRITATION
	Not Available	Not Available
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >15200 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1]
	Inhalation (rat) LC50: >5.325 mg/l/6h ^[2]	Eyes - Moderate irritant *
	Oral (rat) LD50: 3200 mg/kg ^[2]	Skin - Slight irritant *
		Skin (rabbit): mild ***
		Skin: no adverse effect observed (not irritating) ^[1]
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

TITANIUM DIOXIDE (RUTILE)	The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
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Plexichrome Ultra Performance Light Blue - PLLB

	Exposure to titanium dioxide is via inhalation, swallowing or skin contact. When inhaled, it may deposit in lung tissue and lymph nodes causing dysfunction of the lungs and immune system. Absorption by the stomach and intestines depends on the size of the particle. Skin (human) 0.3: mg/3d-I mild
CRISTOBALITE	Inhalation (human) TCLo: 16 mppcf/8H/17.9y-l * Millions of particles per cubic foot
KAOLIN	For bentonite clays: Bentonite (CAS No. 1302-78-9) consists of a group of clays formed by crystallization of vitreous volcanic ashes that were deposited in water. The expected acute oral toxicity of bentonite in humans is very low.
2,2,4-TRIMETHYL-1,3-PENTANEDIOL MONOISOBUTYRATE	Not a skin sensitiser (guinea pig, Magnusson-Kligman) *** Ames Test: negative *** Micronucleus, mouse: negative *** Not mutagenic *** No effects on fertility or foetal development seen in the rat *** * [SWIFT] ** [Eastman] *** [Perstop] The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
TITANIUM DIOXIDE (RUTILE) & KAOLIN	No significant acute toxicological data identified in literature search.
TITANIUM DIOXIDE (RUTILE) & 2,2,4-TRIMETHYL-1,3-PENTANEDIOL MONOISOBUTYRATE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
SILICA CRYSTALLINE - QUARTZ & CRISTOBALITE	WARNING: For inhalation exposure <u>ONLY</u> : This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 µm) crystalline silica as being carcinogenic to humans. This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite.

Acute Toxicity	✗	Carcinogenicity	✓
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✓
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Plexichrome Ultra Performance Light Blue - PLLB	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
titanium dioxide (rutile)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>1-mg/L	2
	EC50	48	Crustacea	>1-mg/L	2
	EC50	72	Algae or other aquatic plants	>10-mg/L	2
NOEC	72	Algae or other aquatic plants	1mg/L	2	
silica crystalline - quartz	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
cristobalite	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
kaolin	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	9.552mg/L	3
	EC50	48	Crustacea	>19mg/L	2
	EC50	96	Algae or other aquatic plants	0.789mg/L	3
	NOEC	72	Algae or other aquatic plants	2mg/L	2
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Plexichrome Ultra Performance Light Blue - PLLB

For Silica:

Environmental Fate: Most documentation on the fate of silica in the environment concerns dissolved silica, in the aquatic environment, regardless of origin, (man-made or natural), or structure, (crystalline or amorphous).

Terrestrial Fate: Silicon makes up 25.7% of the Earth's crust, by weight, and is the second most abundant element, being exceeded only by oxygen.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
titanium dioxide (rutile)	HIGH	HIGH
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
titanium dioxide (rutile)	LOW (BCF = 10)
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	LOW (LogKOW = 2.9966)

Mobility in soil

Ingredient	Mobility
titanium dioxide (rutile)	LOW (KOC = 23.74)
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	LOW (KOC = 22.28)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
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Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

TITANIUM DIOXIDE (RUTILE) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B : Possibly carcinogenic to humans
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
US - California Proposition 65 - Carcinogens
US ACGIH Threshold Limit Values (Spanish)
US ACGIH Threshold Limit Values (TLV)
US AIHA Workplace Environmental Exposure Levels (WEELs)
US DOE Temporary Emergency Exposure Limits (TEELs)
US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule
US NIOSH Recommended Exposure Limits (RELs)
US NIOSH Recommended Exposure Limits (RELs) (Spanish)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Limits - Annotated Table Z-1 (Spanish)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA Chemical Substance Inventory - Interim List of Active Substances

Plexichrome Ultra Performance Light Blue - PLLB

US TSCA Section 5(a)(2) - Significant New Use Rules (SNURs)

SILICA CRYSTALLINE - QUARTZ IS FOUND ON THE FOLLOWING REGULATORY LISTS

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1 : Carcinogenic to humans

US - California Proposition 65 - Carcinogens

US ACGIH Threshold Limit Values (Spanish)

US ACGIH Threshold Limit Values (TLV)

US AIHA Workplace Environmental Exposure Levels (WEELs)

US DOE Temporary Emergency Exposure Limits (TEELs)

US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens

US NIOSH Recommended Exposure Limits (RELs)

US NIOSH Recommended Exposure Limits (RELs) (Spanish)

US OSHA Permissible Exposure Levels (PELs) - Table Z1

US OSHA Permissible Exposure Levels (PELs) - Table Z3

US OSHA Permissible Exposure Limits - Annotated Table Z-1 (Spanish)

US OSHA Permissible Exposure Limits - Annotated Table Z-3 (Spanish)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

CRISTOBALITE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Chemical Footprint Project - Chemicals of High Concern List

US - California Proposition 65 - Carcinogens

US ACGIH Threshold Limit Values (Spanish)

US ACGIH Threshold Limit Values (TLV)

US AIHA Workplace Environmental Exposure Levels (WEELs)

US DOE Temporary Emergency Exposure Limits (TEELs)

US NIOSH Recommended Exposure Limits (RELs) (Spanish)

US OSHA Permissible Exposure Levels (PELs) - Table Z1

US OSHA Permissible Exposure Levels (PELs) - Table Z3

US OSHA Permissible Exposure Limits - Annotated Table Z-1 (Spanish)

US OSHA Permissible Exposure Limits - Annotated Table Z-3 (Spanish)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

KAOLIN IS FOUND ON THE FOLLOWING REGULATORY LISTS

Chemical Footprint Project - Chemicals of High Concern List

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

US ACGIH Threshold Limit Values (Spanish)

US ACGIH Threshold Limit Values (TLV)

US AIHA Workplace Environmental Exposure Levels (WEELs)

US NIOSH Recommended Exposure Limits (RELs)

US NIOSH Recommended Exposure Limits (RELs) (Spanish)

US OSHA Permissible Exposure Levels (PELs) - Table Z1

US OSHA Permissible Exposure Limits - Annotated Table Z-1 (Spanish)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

2,2,4-TRIMETHYL-1,3-PENTANEDIOL MONOISOBUTYRATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

US DOE Temporary Emergency Exposure Limits (TEELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

Federal Regulations**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SECTION 311/312 HAZARD CATEGORIES**

Flammable (Gases, Aerosols, Liquids, or Solids)	No
Gas under pressure	No
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	Yes
Acute toxicity (any route of exposure)	No

Continued...

Plexichrome Ultra Performance Light Blue - PLLB

Reproductive toxicity	No
Skin Corrosion or Irritation	No
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	Yes
Hazards Not Otherwise Classified	No

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported

State Regulations**US. CALIFORNIA PROPOSITION 65**

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

US - CALIFORNIA PROPOSITION 65 - CARCINOGENS: LISTED SUBSTANCE

Titanium dioxide (airborne, unbound particles of respirable size), Silica, crystalline (airborne particles of respirable size) Listed

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (titanium dioxide (rutile); kaolin; silica crystalline - quartz; cristobalite; 2,2,4-trimethyl-1,3-pentanediol monoisobutyrate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (kaolin)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	04/02/2020
Initial Date	04/03/2020

CONTACT POINT

PLEASE NOTE THAT TITANIUM DIOXIDE IS NOT PRESENT IN CLEAR OR NEUTRAL BASES

SDS Version Summary

Version	Issue Date	Sections Updated
0.3.1.1.1	04/02/2020	Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Advice to Doctor, Chronic Health, Classification, Environmental, Exposure Standard, Fire Fighter (extinguishing media), Fire Fighter (fire/explosion hazard), First Aid (eye), First Aid (swallowed), Handling Procedure, Ingredients, Personal Protection (eye), Personal Protection (hands/feet), Spills (major), Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container)

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average

PC—STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

Continued...

Plexichrome Ultra Performance Light Blue - PLLB

OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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