

SAFETY DATA SHEET

According to EC Directive 1907/2006/EC, Article 31

Revision date: 30-Aug-2018

Supersedes: 21-Nov-2017

SDS Number: 30111

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name: Viridian - 511
REACH Registration Number: 01-2119433951-39-0002
EC-No. 215-160-9
Synonyms Chromium oxide Dihydrate, C.I. Pigment Green 18, C.I. 77289
Pure substance/mixture Substance

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

Product Use Description: Colorant in cosmetics and artists colors, paints and coatings
Catalyst

1.3. Details of the supplier of the safety data sheet

Supplier: Michael Harding Art Formulas Ltd
Unit K Springvale Ind Est
Cwmbran, Torfaen
NP44 5BE
Tel: +44(0)1633484700

For further information, please contact

E-mail address: accounts@michaelharding.co.uk

1.4. Emergency telephone number: For hazardous materials incidents only call

CHEMTREC: +44-870-8200418 or +1-703-527-3887

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008
Not classified

2.2. Label Elements

Signal Word **None**

2.3. Other Hazards

General Hazards: None known

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous components, or components with exposure limits (see section 8)

Chemical Name	EC-No.	CAS-No	REACH No.	Weight percent	EU - GHS Substance Classification
Chromium Hydrate	215-160-9	12001-99-9	01-2119433951-39-00 02	> 95	-
Boron oxide	215-125-8	1303-86-2	Exempt	< 3.1	Repr. 1B (H360FD)

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

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Get medical attention immediately if symptoms occur. Show this safety data sheet to the doctor in attendance.
Inhalation:	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen.
Skin contact:	Wash off immediately with soap and plenty of water. If a person feels unwell or symptoms of skin irritation appear, consult a physician. Remove and wash contaminated clothing before re-use.
Eye contact:	Rinse immediately carefully and thoroughly with eye-bath or water. Call a doctor immediately.
Ingestion	If swallowed, seek medical advice immediately and show this SDS or label. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.
Protection of first-aiders:	Avoid contact with skin and eyes.

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

Most Important Symptoms and Effects	Long term exposure may damage lungs and respiratory tract.
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4.3. Indication of immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂)
Dry powder
Dry sand
Alcohol-resistant foam
Use water spray or fog; do not use straight streams

Extinguishing media which must not be used for safety reasons

None

5.2. Special hazards arising from the substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
None in particular

Unusual Fire and Explosion Hazards:
May emit toxic fumes under fire conditions

Hazardous combustion products
Chromium oxides

5.3. Advice for fire-fighters

Special protective equipment for fire-fighters
In the event of fire, wear self-contained breathing apparatus

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment.

Other Information: Not applicable.

6.2. Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

6.3. Methods and materials for containment and cleaning up

Clean-up methods: Take up mechanically, placing in appropriate containers for disposal. Sweep up and shovel into suitable containers for disposal. Take up with a HEPA vacuum or mechanically and collect in suitable container for disposal. Prevent product from entering drains. Clean contaminated surface thoroughly. Local authorities should be advised if significant spillages cannot be contained.

6.4. Reference to other sections

- See section 8 for more information
- See Section 12 for additional information.
- See section 13 for more information

Section 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Safe handling Avoid contact with skin, eyes and clothing. Use only in area provided with appropriate exhaust ventilation. Avoid breathing mists, dusts, or vapors. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed. Store at room temperature in the original container. Keep away from food, drink and animal feeding stuffs.

Additional Storage: not required under normal use

7.3. Specific end uses:

Exposure scenario: No information available.

Other guidelines: No information available.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits

Chemical Name	EU	United Kingdom	France	Spain	Germany
Chromium Hydrate 12001-99-9		TWA: 0.5 mg/m ³ (Cr III)	2 mg/m ³ (Cr III)	TWA: 2 mg/m ³ (Cr III)	2 mg/m ³ (Cr III) AGW - Inhale fraction
Boron oxide 1303-86-2		STEL 20 mg/m ³ TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³	
Chemical Name	Italy	Portugal	Netherlands	Finland	Denmark
Chromium Hydrate 12001-99-9	Cr Listed			TWA: 0.5 mg/m ³ (Cr III)	
Boron oxide 1303-86-2					TWA: 10 mg/m ³
Chemical Name	Austria	Switzerland	Poland	Norway	Ireland
Chromium Hydrate 12001-99-9	MAK: 2 mg/m ³ (Cr III)	TWA: 0.5 mg/m ³ (Cr III) - Inhalable dust	TWA: 0.5 mg/m ³ (Cr III)	TLV: 0.5 mg/m ³ (Cr III)	TWA: 0.5 mg/m ³ (Cr III)
Boron oxide 1303-86-2	TWA: 15 mg/m ³ STEL: 75 mg/m ³	TWA (MAK) - 1.8 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³ STEL: 15 mg/m ³	
Chemical Name	Australia	Belgium	Bulgaria	Czech Republic	Estonia
Chromium Hydrate 12001-99-9		TWA: 0.5 mg/m ³ (Cr III)		TWA: 0.5 mg/m ³ (Cr III)	TWA: 0.02 mg/m ³ (Cr III)
Boron oxide 1303-86-2		TWA: 10 mg/m ³	TWA 5.0 mg/m ³		
Chemical Name	Gibraltar	Greece	Hungary	Iceland	Latvia
Chromium Hydrate 12001-99-9			TWA: 0.5 mg/m ³ (Cr III)		TWA: 1 mg/m ³ (Cr III)
Boron oxide 1303-86-2		TWA: 15 mg/m ³		TWA: 10 mg/m ³ Ceiling: 20 mg/m ³	TWA: 5 mg/m ³
Chemical Name	Lithuania	Luxembourg	Malta	Romania	Sweden
Chromium Hydrate 12001-99-9		TWA: 2 mg/m ³ (Cr III)		TWA: 0.5 mg/m ³ (Cr III)	TWA: 0.5 mg/m ³ (Cr III) - Total dust
Boron oxide 1303-86-2				STEL: 15 mg/m ³ TWA: 10 mg/m ³	

Derived No Effect Level (DNEL) 0.5 mg/m³ Cr - Inhalation, local irritation

Predicted No Effect Concentration (PNEC) Insoluble in water

8.2. Exposure controls

Engineering measures: If dusts or vapors are released, use an adequate local exhaust ventilation.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Personal protective equipment

Eye protection Safety glasses. Wear chemical goggles and full face shield appropriate for risk of exposure

Hand protection Use chemical resistant gloves.

Skin and body protection Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place

Respiratory protection: If dust is released, use respirators tested and approved under appropriate government standards.

Environmental Exposure Controls Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Blue-green Powder
Colour: Blue green
Odour: odourless
Odour Threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks / • Method</u>
pH	Not applicable	
Melting point/range:	> 450 °C	
Freezing point:	Not applicable	
Boiling Point/Range	No data available	
Flash Point	Not applicable	
Evaporation rate	No data available	
Explosion limits:	No data available	
Vapour pressure	No data available	
Vapour density	No data available	
Density:	3.21 g/cm ³	
Water solubility	Insoluble in Water	
Solubility in other solvents	No data available	
Partition coefficient: n-octanol/water	No data available	
Autoignition temperature	Not self-igniting	
Decomposition temperature	No data available	
Viscosity:	No data available	
Pour point:	Not applicable	
Explosive properties:	Not explosive.	

Oxidising Properties Not applicable

9.2. Other information

Molecular weight: 188
Bulk Density 400 kg/m³ approx.

Section 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** No dangerous reaction known under conditions of normal use. Boron oxide may react slowly with water to form Boric acid.
- 10.2. Stability:** Stable under recommended storage conditions
- 10.3. Possibility of hazardous reactions:** None known.
- 10.4. Conditions to avoid:** Exposure to moisture
- 10.5. Incompatible Materials** Strong oxidising agents
- 10.6. Hazardous decomposition products:** at high temperatures, Chromium (VI) Compounds

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute toxicity

Product Information See below

Local effects

- Inhalation:** May cause irritation of respiratory tract.
- Eye contact:** Contact with eyes may cause irritation.
- Skin contact:** Non-irritating to the skin.
- Ingestion** Not expected to cause adverse effects in amounts likely to be ingested by accident.
- Target organ effects:** None.

Component Information

Chemical Name	LD50/Oral	LD50/Dermal	LC50/inhalation
Trade Reg. No.	> 5000 mg/kg (Rat)	>2000 mg/kg (rabbit)	
Boron oxide	3163 mg/kg (Mouse) 3150 mg/kg (Rat)		

Chronic Toxicity

- Chronic toxicity:** Prolonged or repeated inhalation may cause damage to the lungs.
- Corrosivity** None known.

Sensitisation No sensitizing effects known.

Mutagenic effects None expected. Not regarded as mutagenic.

Reproductive Toxicity: Dietary levels of Boric Acid of 6,700 ppm in chronic feeding studies in rats and dogs produced testicular changes (Weir, Fisher, 1972). In chronic feeding studies of mice on diets containing 5,000 ppm Boric Acid, testicular atrophy was present, while mice fed 2,500 ppm Sodium Tetraborate Pentahydrate showed no significant increase in testicular atrophy. In another chronic Boric Acid study, degeneration of semiferous tubules was present together with a reduction of germ cells in mice fed 4,500 ppm Sodium Tetraborate Pentahydrate.

Developmental Toxicity Boric Acid at dietary levels of 1,000 ppm administered to pregnant female rats throughout gestation caused a slight reduction in fetal weight, but was considered close to the no observable affect level. Doses of 2,000 ppm and above caused fetal melformations and maternal toxicity. In mice, the no effect level for fetal weight reduction and maternal toxicity was 1,000 ppm Boric Acid. fetal weight loss was noted at dietary level of 2,000 ppm and above. Malformations (agenesis or shortening of the thirteenth rib) were seen at 4,000 ppm [Heindal et al. 1992]. The doses administered were many times in excess of those to which humans would normally be exposed.

Carcinogenicity: Chromium and Chromium compounds has been reviewed by IARC. There is inadequate evidence in humans for the carcinogenicity of metallic chromium and chromium[III] compounds. There is inadequate evidence for the carcinogenicity of metallic chromium and chromium[III] compounds in experimental animals. Therefore, the working group concluded that Metallic chromium and chromium[III] compounds are not classifiable as to their carcinogenicity to humans (Group 3).

Other adverse effects: No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Product Information: The data listed, below, is based on this or a similar product..

Ecotoxicity

Chemical Name	Toxicity to Algae	Toxicity to Fish	Daphnia Magna (Water Flea)
Boron oxide		0.57 g/L: LC50 72 h Carassius auratus flow-through	EC50: 370 - 490 mg/L (48 h)

Chemical Name	LC50	EC50	Bioaccumulation Concentration Factor	No Observable Effect Concentration/96hr/48hr/24hr (NOEC)
Trade Reg. No.	LC0: > 10 g/L (Zebra fish; 96 h)			> 6480 mg/L Pseudomonas Fluorescens (24h)
Boron oxide	150 mg/L B (rainbow trout - 24 day)	370 - 490 mg/L (Daphnia magna 48 h)		

12.2. Persistence and degradability No data available

12.3. Bioaccumulative potential Does not bioaccumulate

12.4. Mobility in soil	No information available.
12.5. Results of PBT and vPvB assessment	Not applicable.
12.6. Other adverse effects:	
Mobility	No information available
General Note:	Do not allow product to reach ground water, water course or sewage system.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products:	Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of in accordance with local regulations.
EWC waste disposal No:	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Further Information:	Waste codes should be assigned by the user based on the application for which the product was used
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal

Section 14: TRANSPORT INFORMATION

<u>Surface Shipments in Europe (ADR/RID):</u>	Not regulated
<u>International Air Transport Association (IATA)</u>	Not regulated
<u>International Maritime Dangerous Goods (IMDG)</u>	Not regulated

Section 15: REGULATORY INFORMATION

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

International Inventories

USA (TSCA)	Complies
EU (EINECS)	Complies
CANADA (DSL)	Complies
CANADA (NDSL)	Not applicable
JAPAN (ENCS):	Complies
PHILIPPINES (PICCS):	Complies
KOREA (KECL)	Complies
China (IECSC)	Complies
AUSTRALIA (AICS)	Complies
NEW ZEALAND (NZIoC):	Complies
TAIWAN (NECI)	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
NECI - Taiwan National Existing Chemical Inventory

National Regulations

Germany

Water Hazard Class (WGK): Class 1 Slightly hazardous to water
Classification according VwVwS dated May 1999 (German legislation)

Restriction on marketing use: None known

15.2. Chemical Safety Assessment

No information available

Section 16: OTHER INFORMATION

GHS / CLP

Basis of Classification This substance is classified based on Directive 1272/2008/EC and its amendments (CLP regulation, GHS); See Section 2

Full text of H-Statements referred to under sections 2 and 3

H360FD - May damage fertility. May damage the unborn child

Prepared by Product Stewardship
Revision Date 30-Aug-2018
Supersedes: 21-Nov-2017

This Material Safety Data Sheet 3
contains changes from the previous
version in Sections:

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

The information provided in this Safety Data Sheet is correct to the best of ELEMENTIS' knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. The information relates only to the specific product designated and may not be valid for such product when used in combination with any other material or in any process, unless specified in this SDS. ELEMENTIS specifically disclaims any liability for any loss, injury or damage which may result from use or misuse of this product.

All chemicals should be handled only by competent personnel, within a controlled environment. It is the buyer's/user's responsibility to ensure that his activities comply with all applicable federal, state, provincial and local laws, and to determine the conditions necessary for the safe use of this product. ELEMENTIS urges each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product.

End of Safety Data Sheet