Safety Data Sheet according to (EC) No 1907/2006 as amended

BONDERITE M-CR 1200S CHROMATE COATING AERO

SDS No. : 94797
V014.0
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
BONDERITE M-CR 1200S CHROMATE COATING AERO

1.2. Relevant identified uses of the substance or mixture and uses advised against
Intended use:
Chromating Products for Metals

Surface treatment for applications in the aeronautics and aerospace industries, unrelated to functional chrome plating or functional chrome plating with decorative character, where any of the following key functionalities is necessary for the intended use: corrosion resistance / active corrosion inhibition, chemical resistance, hardness, adhesion promotion (adhesion to subsequent coating or paint), temperature resistance, resistance to embrittlement, wear resistance, surface properties impeding deposition of organisms, layer thickness, flexibility, and resistivity

1.3. Details of the supplier of the safety data sheet
Henkel Ltd
Adhesives
Wood Lane End
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (1442) 278000

For Safety Data Sheet updates please visit our website https://mysds.henkel.com/index.html#/appSelection or www.henkel-adhesives.com.
SDSinfo.Adhesive@henkel.com

1.4. Emergency telephone number
24 Hours Emergency Tel: +44 0 8701 906777 - For further general health & safety, technical and practical advice on this product, please call +44 (0) 1606 593933 or write to: Technical Services; Henkel Limited; Road 5; Winsford Industrial Estate; Winsford; Cheshire; CW7 3QY- Email: technical.services@henkel.co.uk

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Oxidizing solids	Category 1
H271 May cause fire or explosion; strong oxidizer.	
Acute toxicity	Category 3
H301 Toxic if swallowed.	
Route of Exposure: Oral	
Acute toxicity	Category 2
H330 Fatal if inhaled.	
Route of Exposure: Inhalation	
Acute toxicity	Category 2
H310 Fatal in contact with skin.	
Route of Exposure: Dermal	
Skin corrosion	Category 1A
H314 Causes severe skin burns and eye damage.	
Serious eye damage	Category 1
H318 Causes serious eye damage.	
Respiratory sensitizer	Category 1
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.	
Skin sensitizer	Category 1
H317 May cause an allergic skin reaction.	
Germ cell mutagenicity	Category 1B
H340 May cause genetic defects.	
Carcinogenicity	Category 1A
H350 May cause cancer.	
Toxic to reproduction	Category 2
H361f Suspected of damaging fertility.	
Specific target organ toxicity - single exposure	Category 3
H335 May cause respiratory irritation.	
Target organ: respiratory tract irritation	
Specific target organ toxicity - repeated exposure	Category 1
H372 Causes damage to organs through prolonged or repeated exposure.	
Acute hazards to the aquatic environment	Category 1
H400 Very toxic to aquatic life.	
Chronic hazards to the aquatic environment	Category 1
H410 Very toxic to aquatic life with long lasting effects.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:

Contains Chromium trioxide

Signal word: Danger

Hazard statement:	H340 May cause genetic defects. H350 May cause cancer. H271 May cause fire or explosion; strong oxidizer. H301 Toxic if swallowed. H310 Fatal in contact with skin. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H330 Fatal if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation. H361f Suspected of damaging fertility. H372 Causes damage to organs through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.
Supplemental information	EUH032 Contact with acids liberates very toxic gas. Can attack glass and vitreous materials. Restricted to professional users.
Precautionary statement: Prevention	P201 Obtain special instructions before use. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P221 Take any precaution to avoid mixing with combustibles. P260 Do not breathe dusts or mists. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statement: Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 IF exposed or concerned: Get medical advice/attention. P310 Immediately call a POISON CENTER or doctor. P370+P378 In case of fire: Use CO2, dry chemical, or foam for extinction. P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
Authorisation Numbers :	REACH/20/18/17

2.3. Other hazards

None if used properly.

Following substances are present in a concentration ≥ the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration ≥ the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS-No. EC Number REACH-Reg No.	Concentration	Classification	Specific Conc. Limits, M-factors and ATEs	Add. Information
Chromium trioxide 1333-82-0 215-607-8 01-2119458868-17	40- 60 %	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Ox. Sol. 1, H271 Acute Tox. 3, Oral, H301 Acute Tox. 2, Dermal, H310 Acute Tox. 2, Inhalation, H330 Skin Corr. 1A, H314 Skin Sens. 1, H317 Resp. Sens. 1, H334 Muta. 1B, H340 Carc. 1A, H350 Repr. 2, H361f STOT RE 1, H372	STOT SE 3; H335; C >= 1 % ===== M acute = 1 M chronic = 1 ===== inhalation:ATE = 0,186 mg/l;dust/mist	SVHC
Potassium tetrafluoroborate 14075-53-7 237-928-2	20- 40 %			EU OEL
Tripotassium hexacyanoferrate 13746-66-2 237-323-3 01-2120787462-46	10- 20 %	Eye Irrit. 2, H319 Aquatic Chronic 2, H411		
sodium fluoride 7681-49-4 231-667-8 01-2119539420-47	5- < 10 %	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Acute Tox. 3, Oral, H301		EU OEL
Dipotassium hexafluorozirconate 16923-95-8 240-985-6 01-2119978269-18	5- < 10 %	Acute Tox. 3, Oral, H301 Eye Dam. 1, H318	oral:ATE = 51 mg/kg	EU OEL

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.
For full text of the H - statements and other abbreviations see section 16 "Other information".

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person from dust-contaminated zone.
Immediate medical treatment necessary.

Skin contact:
Immediately rinse with copious amounts of running water (for 10 minutes). Remove contaminated clothes. Put on a bandage with sterile gauze, seek medical attention in hospital.

Eye contact:
Immediately flush eyes with soft jet of water or eye rinse solution for at least 15 minutes. Hold eyelid wide-open. Seek a doctor/hospital, eye flushing should continue during transportation to a doctor.

Ingestion:
Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.
Immediate medical treatment necessary.

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

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

INGESTION: Nausea, vomiting, diarrhea, abdominal pain.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

4.3. Indication of any immediate medical attention and special treatment needed
See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Carbon dioxide.
Water spray jet

Extinguishing media which must not be used for safety reasons:
High pressure waterjet

5.2. Special hazards arising from the substance or mixture
Formation of toxic gases is possible during heating or in fires.

5.3. Advice for firefighters
Wear protective equipment.
Wear self-contained breathing apparatus.

Additional information:
In case of fire, keep containers cool with water spray.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Keep unprotected persons away.
Avoid dust formation.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Dispose of contaminated material as waste according to Section 13.
Remove mechanically.
Do not use any organic materials (e.g. sawmill waste).

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
When diluting, always stir slowly the product into standing water.
Avoid dust formation.
Avoid skin and eye contact.
Ensure that workrooms are adequately ventilated.
See advice in section 8

Hygiene measures:
Do not eat, drink or smoke when using this product.
Wash contaminated clothing before reuse.
Wash hands before work breaks and after finishing work.
The workplace should be equipped with an emergency shower and eye-rinsing facility.

7.2. Conditions for safe storage, including any incompatibilities
Store only in the original container.
Do not use packing made of metal.
Keep container in a well ventilated place.
Keep container tightly sealed.
Store in a cool, dry place.
Must be stored in a room with spill collection facilities.
Do not store near sources of heat or ignition, or reactive materials.
Do not store together with food or other consumables (coffee, tea, tobacco, etc.).
Do not store with strongly acidic or strongly alkaline products.
Do not store together with oxidants.

7.3. Specific end use(s)
Chromating Products for Metals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Great Britain

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Chromium trioxide 1333-82-0 [Chromium (VI) compounds (as Cr), process generated]		0,025	Time Weighted Average (TWA):		EH40 WEL
Chromium trioxide 1333-82-0 [Chromium (VI) compounds (as Cr)]		0,01	Time Weighted Average (TWA):		EH40 WEL
Chromium trioxide 1333-82-0 [Chromium (II) compounds (as Cr)]		0,5	Time Weighted Average (TWA):		EH40 WEL
Chromium trioxide 1333-82-0 [Chromium (III) compounds (as Cr)]		0,5	Time Weighted Average (TWA):		EH40 WEL
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,005	Time Weighted Average (TWA):	This limit does not apply until: 17 January 2025	EU OELIII
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS, AS CHROMIUM, FUMES]		0,025	Time Weighted Average (TWA):		EU OELIII
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,01	Time Weighted Average (TWA):		EU OELIII
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,025	Time Weighted Average (TWA):		EU OELIII
Potassium tetrafluoroborate 14075-53-7 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Potassium tetrafluoroborate 14075-53-7 [Flouride (inorganic, as F)]		2,5	Time Weighted Average (TWA):		EH40 WEL
Sodium fluoride 7681-49-4 [FLOURIDE (INORGANIC, AS F)]		2,5	Time Weighted Average (TWA):		EH40 WEL
Sodium fluoride 7681-49-4 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Dipotassium hexafluorozirconate 16923-95-8 [ZIRCONIUM COMPOUNDS (AS ZR)]		5	Time Weighted Average (TWA):		EH40 WEL
Dipotassium hexafluorozirconate 16923-95-8 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Dipotassium hexafluorozirconate 16923-95-8 [ZIRCONIUM COMPOUNDS (AS ZR)]		10	Short Term Exposure Limit (STEL):	15 minutes	EH40 WEL
Dipotassium hexafluorozirconate 16923-95-8 [Flouride (inorganic, as F)]		2,5	Time Weighted Average (TWA):		EH40 WEL

Occupational Exposure Limits

Valid for
Ireland

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Chromium trioxide 1333-82-0 [CHROMIUM (II) COMPOUNDS]		2	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Chromium trioxide		0,025	Time Weighted Average	Binding OELV	IR_OEL

1333-82-0 [CHROMIUM (VI) COMPOUNDS]			(TWA):		
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,005	Time Weighted Average (TWA):	Binding OELV	IR_OEL
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,01	Time Weighted Average (TWA):	Binding OELV	IR_OEL
Chromium trioxide 1333-82-0 [CHROMIUM (III) COMPOUNDS]		2	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,005	Time Weighted Average (TWA):	This limit does not apply until: 17 January 2025	EU OELIII
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS, AS CHROMIUM, FUMES]		0,025	Time Weighted Average (TWA):		EU OELIII
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,01	Time Weighted Average (TWA):		EU OELIII
Chromium trioxide 1333-82-0 [CHROMIUM (VI) COMPOUNDS]		0,025	Time Weighted Average (TWA):		EU OELIII
Potassium tetrafluoroborate 14075-53-7 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Potassium tetrafluoroborate 14075-53-7 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Potassium tetrafluoroborate 14075-53-7 [FLUORIDE]		2,5	Time Weighted Average (TWA):		IR_OEL
Sodium fluoride 7681-49-4 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Sodium fluoride 7681-49-4 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Sodium fluoride 7681-49-4 [FLUORIDE]		2,5	Time Weighted Average (TWA):		IR_OEL
Dipotassium hexafluorozirconate 16923-95-8 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Dipotassium hexafluorozirconate 16923-95-8 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Dipotassium hexafluorozirconate 16923-95-8 [Fluoride]		2,5	Time Weighted Average (TWA):		IR_OEL

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Chromium trioxide 1333-82-0	aqua (freshwater)		0,003 mg/l				
Chromium trioxide 1333-82-0	aqua (marine water)		0,003 mg/l				
Chromium trioxide 1333-82-0	sewage treatment plant (STP)		0,21 mg/l				
Chromium trioxide 1333-82-0	sediment (freshwater)				0,15 mg/kg		
Chromium trioxide 1333-82-0	sediment (marine water)					0,15 ng/kg	
Chromium trioxide 1333-82-0	Soil				0,031 mg/kg		
Chromium trioxide 1333-82-0	oral				17000000 mg/kg		
sodium fluoride 7681-49-4	aqua (freshwater)		0,9 mg/l				
sodium fluoride 7681-49-4	aqua (marine water)		0,9 mg/l				
sodium fluoride 7681-49-4	sewage treatment plant (STP)		51 mg/l				
sodium fluoride 7681-49-4	Soil				11 mg/kg		
Dipotassium hexafluorozirconate 16923-95-8	aqua (freshwater)		0,163 mg/l				
Dipotassium hexafluorozirconate 16923-95-8	aqua (marine water)		0,163 mg/l				
Dipotassium hexafluorozirconate 16923-95-8	aqua (intermittent releases)		0,107 mg/l				
Dipotassium hexafluorozirconate 16923-95-8	sediment (freshwater)				28,86 mg/kg		
Dipotassium hexafluorozirconate 16923-95-8	sediment (marine water)				5,77 mg/kg		
Dipotassium hexafluorozirconate 16923-95-8	Soil				22,5 mg/kg		
Dipotassium hexafluorozirconate 16923-95-8	sewage treatment plant (STP)		1,77 mg/l				

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Chromium trioxide 1333-82-0	Workers	Inhalation	Acute/short term exposure - local effects		0,01 mg/m3	
Chromium trioxide 1333-82-0	Workers	Inhalation	Long term exposure - local effects		0,01 mg/m3	
sodium fluoride 7681-49-4	Workers	inhalation	Acute/short term exposure - local effects		2,5 mg/m3	
sodium fluoride 7681-49-4	Workers	inhalation	Long term exposure - systemic effects		2,5 mg/m3	
sodium fluoride 7681-49-4	Workers	inhalation	Acute/short term exposure - systemic effects		2,5 mg/m3	
sodium fluoride 7681-49-4	Workers	inhalation	Long term exposure - local effects		2,5 mg/m3	
sodium fluoride 7681-49-4	Workers	dermal	Long term exposure - systemic effects		0,36 mg/kg	
sodium fluoride 7681-49-4	Workers	dermal	Acute/short term exposure - systemic effects		0,36 mg/kg	
Dipotassium hexafluorozirconate 16923-95-8	Workers	inhalation	Long term exposure - systemic effects		6,2 mg/m3	
Dipotassium hexafluorozirconate 16923-95-8	Workers	inhalation	Acute/short term exposure - systemic effects		6,2 mg/m3	
Dipotassium hexafluorozirconate 16923-95-8	Workers	inhalation	Long term exposure - local effects		6,2 mg/m3	
Dipotassium hexafluorozirconate 16923-95-8	Workers	dermal	Long term exposure - systemic effects		89 mg/kg	
Dipotassium hexafluorozirconate 16923-95-8	Workers	dermal	Acute/short term exposure - systemic effects		89 mg/kg	
Dipotassium hexafluorozirconate 16923-95-8	General population	dermal	Long term exposure - systemic effects		44,5 mg/kg	
Dipotassium hexafluorozirconate 16923-95-8	General population	dermal	Acute/short term exposure - systemic effects		44,5 mg/kg	

Biological Exposure Indices:

Ingredient [Regulated substance]	Parameters	Biological specimen	Sampling time	Conc.	Basis of biol. exposure index	Remark	Additional Information
Chromium trioxide 1333-82-0 [CHROMIUM VI]	Chromium	Creatinine in urine	Sampling time: End of shift.		UKEH40BMGV		

8.2. Exposure controls:

Engineering controls:
Thorough dedusting.

Respiratory protection:
In case of dust formation, we recommend wearing of appropriate respiratory protection equipment with particle filter P (EN 14387).
This recommendation should be matched to local conditions.

Hand protection:
Chemical-resistant protective gloves (EN 374). Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): Fluorinated rubber (FKM; >= 0.7 mm thickness) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Fluorinated rubber (FKM; >= 0.7 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Protective eye equipment should conform to EN166.
Goggles which can be tightly sealed.

Skin protection:
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.
Protective clothing that covers arms and legs.

Advices to personal protection equipment:
The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Delivery form	solid material
Colour	light brown
Odor	odourless
Physical state	solid
Melting point	> 180 °C (> 356 °F)
Solidification temperature	Not applicable, Product is a solid.
Initial boiling point	Not applicable, Decomposition.
Flammability	The product is not flammable.
Explosive limits	Not applicable, Product is a solid.
Flash point	Not applicable, Product is a solid.
Auto-ignition temperature	Not applicable, Product is a solid.
Decomposition temperature	Not applicable, Substance/mixture is not self-reactive, no organic peroxide and does not decompose under foreseen conditions of use
pH (20 °C (68 °F); Conc.: 15,0 % product; Solvent: Demineralised water)	1,0 - 2,2 PH-value, potentiometer
Viscosity (kinematic)	Not applicable, Product is a solid.
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Soluble
Partition coefficient: n-octanol/water	Not applicable Mixture
Vapour pressure (20 °C (68 °F))	< 0,1 hPa
Density (20 °C (68 °F))	2,5 - 2,7 g/cm3 no method / method unknown
Bulk density	1.800 - 1.900 g/l Supplier method
Relative vapour density:	Not applicable, Product is a solid.
Particle characteristics	Particle Size - D50 > 0,6 mm Weight based calculation method

9.2. Other information

Other information not applicable for this product

SECTION 10: Stability and reactivity

10.1. Reactivity
Reaction with strong bases

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
No decomposition if used according to specifications.

10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
None if used for intended purpose.
In case of fire toxic gases can be released.

SECTION 11: Toxicological information

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

Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Chromium trioxide 1333-82-0	LD50	52 mg/kg	rat	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)
Potassium tetrafluoroborate 14075-53-7	LD50	5.854 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Tripotassium hexacyanoferrate 13746-66-2	LD50	2.970 mg/kg	rat	not specified
sodium fluoride 7681-49-4	LD50	148,5 mg/kg	rat	EPA OPPTS 870.1100 (Acute Oral Toxicity)
Dipotassium hexafluorozirconate 16923-95-8	LD50	> 25 - 200 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Dipotassium hexafluorozirconate 16923-95-8	Acute toxicity estimate (ATE)	51 mg/kg		Expert judgement

Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Chromium trioxide 1333-82-0	LD50	57 mg/kg	rabbit	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
sodium fluoride 7681-49-4	LD50	> 2.000 mg/kg	rat	EPA OPPTS 870.1200 (Acute Dermal Toxicity)

Acute inhalative toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Test atmosphere	Exposure time	Species	Method
Chromium trioxide 1333-82-0	Acute toxicity estimate (ATE)	0,186 mg/l	dust/mist	4 h		Expert judgement

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
Chromium trioxide 1333-82-0	corrosive	24 h	rabbit	not specified
Potassium tetrafluoroborate 14075-53-7	not irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Tripotassium hexacyanoferrate 13746-66-2	not irritating	15 min	Human, EpiSkinTM (SM), Reconstructed Human Epidermis (RHE)	OECD Guideline 439 (In Vitro Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method)

Serious eye damage/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
Chromium trioxide 1333-82-0	corrosive		rabbit	not specified
Potassium tetrafluoroborate 14075-53-7	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Potassium tetrafluoroborate 14075-53-7	moderately irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Tripotassium hexacyanoferrate 13746-66-2	irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Dipotassium hexafluorozirconate 16923-95-8	Category 1 (irreversible effects on the eye)		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Species	Method
sodium fluoride 7681-49-4	not sensitising	Buehler test	guinea pig	EPA OPP 81-6 (Skin Sensitisation)

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Chromium trioxide 1333-82-0	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		not specified
sodium fluoride 7681-49-4	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		Ames Test
sodium fluoride 7681-49-4	negative	mammalian cell gene mutation assay	without		not specified

Carcinogenicity

No data available.

Reproductive toxicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
sodium fluoride 7681-49-4	NOAEL P ca. 250 ppm NOAEL F1 ca. 250 ppm	three-generation study	oral: drinking water	rat	not specified

STOT-single exposure:

No data available.

STOT-repeated exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
Chromium trioxide 1333-82-0	NOAEL 0,0007 mg/l	inhalation	90 days taeglich 20 Stunden	rat	not specified
sodium fluoride 7681-49-4	NOAEL ca. 25 ppm	oral: gavage	28 d once per day	rat	equivalent or similar to OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)

Aspiration hazard:

No data available.

11.2 Information on other hazards

not applicable

SECTION 12: Ecological information

General ecological information:
Do not empty into drains / surface water / ground water.
Locally harmful for aquatic and landliving organisms because of low pH and corrosive properties.
Inorganic product: Decomposition not affected.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Chromium trioxide 1333-82-0	LC50	52 mg/l	96 h	Carassius auratus	OECD Guideline 203 (Fish, Acute Toxicity Test)
Chromium trioxide 1333-82-0	NOEC	0,105 mg/l	60 d	Salvelinus namaycush	OECD Guideline 210 (fish early lite stage toxicity test)
Potassium tetrafluoroborate 14075-53-7	LC50	166 mg/l	96 h	Brachydanio rerio (new name: Danio rerio)	not specified
Tripotassium hexacyanoferrate 13746-66-2	LC50	> 100 mg/l	96 h	Cyprinus carpio	OECD Guideline 203 (Fish, Acute Toxicity Test)
sodium fluoride 7681-49-4	LC50	112,7 mg/l	96 h	Oncorhynchus mykiss	other guideline:
sodium fluoride 7681-49-4	NOEC	4 mg/l	21 d	Oncorhynchus mykiss	other guideline:
Dipotassium hexafluorozirconate 16923-95-8	LC50	172,4 mg/l	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)

Toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Potassium tetrafluoroborate 14075-53-7	EC50	1.100 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Tripotassium hexacyanoferrate 13746-66-2	EC50	59 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
sodium fluoride 7681-49-4	EC50	214 mg/l	48 h	Daphnia magna	other guideline:
Dipotassium hexafluorozirconate 16923-95-8	EC50	151,4 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity (aquatic invertebrates):

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Potassium tetrafluoroborate 14075-53-7	NOEC	117 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
sodium fluoride 7681-49-4	NOEC	19,7 mg/l	21 d	Daphnia magna	other guideline:

Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Chromium trioxide 1333-82-0	EC50	0,5 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Potassium tetrafluoroborate 14075-53-7	EC50	398 mg/l	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
Tripotassium hexacyanoferrate 13746-66-2	EC50	3,1 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Tripotassium hexacyanoferrate 13746-66-2	EC10	0,14 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
sodium fluoride 7681-49-4	EC10	280 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
sodium fluoride 7681-49-4	EC50	850 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
Dipotassium hexafluorozirconate 16923-95-8	EC50	10,66 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Dipotassium hexafluorozirconate 16923-95-8	EC10	1,63 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity (microorganisms):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Chromium trioxide 1333-82-0	EC0	1 mg/l			not specified
Potassium tetrafluoroborate 14075-53-7	EC0	1.290 mg/l	30 min		not specified
Tripotassium hexacyanoferrate 13746-66-2	EC50	> 1.000 mg/l	3 h	activated sludge of a predominantly domestic sewage	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
sodium fluoride 7681-49-4	EC0	231 mg/l	16 h		not specified

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

The table below presents the data of the classified substances present in the mixture.

Hazardous substances **CAS-No.**	**PBT / vPvB**
Chromium trioxide 1333-82-0	According to Annex XIII of regulation (EC) 1907/2006 a PBT and vPvB assessment shall not be conducted for inorganic substances.
sodium fluoride 7681-49-4	According to Annex XIII of regulation (EC) 1907/2006 a PBT and vPvB assessment shall not be conducted for inorganic substances.
Dipotassium hexafluorozirconate 16923-95-8	According to Annex XIII of regulation (EC) 1907/2006 a PBT and vPvB assessment shall not be conducted for inorganic substances.

12.6. Endocrine disrupting properties

not applicable

12.7. Other adverse effects

If acidic or alkaline products are discharged into wastewater installations care must be taken that the discharged wastewater has a pH in the range pH 6 - 10, as pH variations could cause disorders in wastewater channels and biological sewage treatment plants. The local discharge regulations take precedence.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
In consultation with the responsible local authority, must be subjected to special treatment.

Waste code

060405

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

SECTION 14: Transport information

14.1. UN number or ID number

ADR	1463
RID	1463
ADN	1463
IMDG	1463
IATA	1463

14.2. UN proper shipping name

ADR	CHROMIUM TRIOXIDE, ANHYDROUS (mixture)
RID	CHROMIUM TRIOXIDE, ANHYDROUS (mixture)
ADN	CHROMIUM TRIOXIDE, ANHYDROUS (mixture)
IMDG	CHROMIUM TRIOXIDE, ANHYDROUS (mixture)
IATA	Chromium trioxide, anhydrous (mixture)

14.3. Transport hazard class(es)

ADR	5.1 (6.1, 8)
RID	5.1 (6.1, 8)
ADN	5.1 (6.1, 8)
IMDG	5.1 (6.1, 8)
IATA	5.1 (6.1, 8)

14.4. Packing group

ADR	II
RID	II
ADN	II
IMDG	II
IATA	II

14.5. Environmental hazards

ADR	Environmentally Hazardous
RID	Environmentally Hazardous
ADN	Environmentally Hazardous
IMDG	Marine Pollutant
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable Tunnelcode: (E)
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

Ozone Depleting Substance (ODS) (Regulation (EC) No 1005/2009):	Not applicable
Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):	Not applicable
Persistent organic pollutants (Regulation (EU) 2019/1021):	Not applicable

Specific Conditions and Monitoring requirements for authorised uses

Authorisation valid for

CAS 1333-82-0	Chromium trioxide
Authorisation Numbers :	REACH/20/18/17
Authorised Use	Surface treatment for applications in the aeronautics and aerospace industries, unrelated to functional chrome plating or functional chrome plating with decorative character, where any of the following key functionalities is necessary for the intended use: corrosion resistance / active corrosion inhibition, chemical resistance, hardness, adhesion promotion (adhesion to subsequent coating or paint), temperature resistance, resistance to embrittlement, wear resistance, surface properties impeding deposition of organisms, layer thickness, flexibility, and resistivity
Monitoring Requirements	The authorisation holders and the downstream users shall implement the following monitoring programmes for chromium (VI): (a) At least annual air monitoring programmes on occupational exposure to chromium (VI) in accordance with Article 5(5)(e) of Directive 2004/37/EC. The first measurements shall be performed without delay and at the latest on 18 June 2021. Those programmes shall be based on relevant standard methodologies or protocols and be representative of: (i) the range of tasks undertaken where exposure to chromium is possible, including tasks involving process and maintenance workers; (ii) the operational conditions and risk management measures typical for each of those tasks: (iii) the number of workers potentially exposed; (b) At least annual monitoring programmes for chromium (VI) emissions into wastewater and air from local exhaust ventilation. Those programmes shall be based on relevant standard methodologies or protocols and be representative of the operational conditions and risk management measures (such as waste water treatment systems, gaseous emission abatement techniques) used at the individual sites where relevant measurements are carried out. The downstream users shall make available to the Agency the information collected from the monitoring programmes as described above, including the contextual information related to each set of measurements, in the format of the template available on the ECHA website www.echa.europa.eu/web/guest/support/dossier-submission-tools/reach-it/downstream-user-authorised-use, for the first time by 18 December 2021, for transmission to the authorisation holders for the purpose of verifying and validating the exposure scenarios and for the preparation of the review report.
Conditions	The conditions set out in the following paragraphs shall apply to the authorisation bearing numbers REACH/20/18/0 to REACH/20/18/27. 1. The authorisation holders shall make available the specific exposure scenarios to the downstream users to whom this Decision applies by virtue of Article 56(2) of Regulation (EC) No 1907/2006 (‘downstream users’), in an updated safety data sheet, at the latest on 18 March 2021. The authorisation holders and the downstream users shall apply the risk management measures and operational conditions included in the specific exposure scenarios without undue delay. 2. The authorisation holders shall verify and validate the specific exposure scenarios referred to in paragraph 2 at the latest on 18 June 2022 by making an analysis of tasks, using exposure and emission data measured by downstream users and related contextual information and by means of monitoring programmes of occupational exposure and environmental releases measurements, relating to all processes described for the authorised uses. The validated and verified exposure scenarios shall immediately be made available to the downstream users. 3. The information to be made available to downstream users as referred to in paragraphs 1 and 2 shall include detailed guidance on how to select and apply risk management measures. The authorisation holders and the downstream users shall submit that information to the competent authorities of the Member States where the authorised uses take place upon request. The authorisation bearing numbers REACH/20/18/14 to REACH/20/18/27 shall be subject to the following condition: as regards spraying operations, the downstream users shall apply the risk management measures and operational conditions set out in the Annex. The area in which spraying operations take place shall be restricted either physically by means of barriers and signalling or through the implementation of strict procedures during the activity, which shall continue being applied for a specified time after the spray application has ceased. Workers

	shall not remove the respiratory protective equipment (RPE) used in spraying operations until they have left the area of application. The authorisation bearing numbers REACH/20/18/21 to REACH/20/18/27 shall be subject to the condition that the authorisation holders and the downstream users ensure that there is no chromium (VI) above the detectable level present in articles for supply to the general public.
VOC content (2010/75/EU)	0 %

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

National regulations/information (Great Britain):

Remarks	Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, e.g COSHH Essentials. EH40 Occupational Exposure Limits Chemicals (Hazard Information & Packaging for Supply) Regulations. The Personnel Protective Equipment at Work Regulations. The Carriage of Dangerous Goods by Road Regulations. The Health & Safety at Work Act 1974. (Note: Use latest editions/amendments of above referenced documents.)

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text
of all abbreviations indicated by codes in this safety data sheet are as follows:

H271 May cause fire or explosion; strong oxidizer.
H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H361f Suspected of damaging fertility.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.

ED:	Substance identified as having endocrine disrupting properties
EU OEL:	Substance with a Union workplace exposure limit
EU EXPLD 1:	Substance listed in Annex I, Reg (EC) No. 2019/1148
EU EXPLD 2	Substance listed in Annex II, Reg (EC) No. 2019/1148
SVHC:	Substance of very high concern (REACH Candidate List)
PBT:	Substance fulfilling persistent, bioaccumulative and toxic criteria
PBT/vPvB:	Substance fulfilling persistent, bioaccumulative and toxic plus very persistent and very bioaccumulative criteria
vPvB:	Substance fulfilling very persistent and very bioaccumulative criteria

Further information:

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