SAFETY DATA SHEET

according to Regulation (EU) 2015/830

Shellshield 301(TM) refractory cement

Revision 1

Revision date 2020-10-27

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	Shellshield 301(TM) refractory cement

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

Product Use	[SU3] Industrial uses: Uses of substances as such or in preparations at industrial sites;
Description	Foundry material.

1.3. Details of the supplier of the safety data sheet

Company	Ransom & Randolph
Address	3535 Briarfield Boulevard, PO Box 1570 Maumee, Ohio 43537 USA
Web	www.ransom-randolph.com
Telephone	+1 (419) 865-9497
Fax	+1 (419) 865-9997
Email	RR.SDS@dentsply.com
Email address of the competent person	RR.SDS@dentsply.com

1.4. Emergency telephone number

Emergency telephone number	USA +1 419 865 9497
Company	Ransom & Randolph Co.
	08:00-17:00 (US Eastern Std. / GMT minus 5)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.2. Classification - EC 1272/2008	Skin Irrit. 2: H315; Eye Dam. 1: H318; Carc. 1A: H350; STOT SE 1: H370; STOT RE 1: H372;

2.2. Label elements

Hazard pictograms	This substance / mixture has been classified in accordance with the US Federal OSHA Hazard Communication Standard 29CFR 1910.1200. Substance concentration band-ranges are presented, and minor ingredient composition maybe withheld, to protect trade secrets. 
Signal Word	Danger
Hazard Statement	Skin Irrit. 2: H315 - Causes skin irritation. Eye Dam. 1: H318 - Causes serious eye damage. Carc. 1A: H350 - May cause cancer inhalation. STOT SE 1: H370 - Causes damage to organs (lungs) . STOT RE 1: H372 - Causes damage to organs (lungs) through prolonged or repeated exposure

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2.2. Label elements

	inhalation.
Precautionary Statement: Prevention	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P260 - Do not breathe dust/fume/gas/mist/vapours/spray. P264 - Wash (hands) thoroughly after handling. P270 - Do no eat, drink or smoke when using this product. P280 - Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary Statement: Response	P302+P352 - IF ON SKIN: Wash with plenty of water/ . 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/doctor/ . P314 - Get medical advice/attention if you feel unwell. P321 - Specific treatment (see on this label). P332+P313 - If skin irritation occurs: Get medical advice/attention.
Precautionary Statement: Storage	P405 - Store locked up.
Precautionary Statement: Disposal	P501 - Dispose of contents/container to local and national regulations

2.3. Other hazards

Other hazards	Product contains respirable crystalline silica (RCS). Non-respirable crystalline silica as quartz and cristobalite (in a wet form).

Further information

	Not applicable. PBT and vPvB assessment.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
sodium silicate.		1344-09-8	215-687-4		10 - 20%	Met. Corr. 1: H290; Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Dam. 1: H318;
Kaolin clay. (Kaolin)		1332-58-7			1 - 10%	Eye Irrit. 2: H319;
quartz (conc. >/= 1.0%)		14808-60-7	238-878-4		0.5 - 1%	Carc. 1A: H350; STOT RE 1: H372;

Further information

	Full text for all Risk Phrases mentioned in this section are displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air.
Eye contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open.
Skin contact	Wash with soap and water.
Ingestion	Drink 1 to 2 glasses of water. DO NOT INDUCE VOMITING.

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

Inhalation	May cause irritation to respiratory system.
Eye contact	May cause irritation to eyes.
Skin contact	May cause irritation to skin.
Ingestion	May cause irritation to mucous membranes.

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

Inhalation	Seek medical attention if irritation or symptoms persist.
Eye contact	Seek medical attention if irritation or symptoms persist.
Skin contact	Seek medical attention if irritation or symptoms persist.
Ingestion	Seek medical attention if irritation or symptoms persist.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use extinguishing media appropriate to the surrounding fire conditions.

5.2. Special hazards arising from the substance or mixture

Burning produces irritating, toxic and obnoxious fumes. Eliminate all sources of ignition. Risk of explosion by shock, friction, fire or other sources of ignition.

5.3. Advice for firefighters

Self-contained breathing apparatus. Wear suitable protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid raising dust. After contact with skin, wash immediately with plenty of water. Wear suitable respiratory equipment when necessary.

6.2. Environmental precautions

Use appropriate container to avoid environmental contamination. Do not allow runoff water to enter sewers or drains.

6.3. Methods and material for containment and cleaning up

Absorb with inert, absorbent material. Avoid raising dust. Clean the area using a vacuum cleaner. Transfer to suitable, labelled containers for disposal.

6.4. Reference to other sections

See section [2, 8 & 13] for further information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid formation of dust. Ensure adequate ventilation of the working area. <. OEL: Occupational exposure limit. In case of insufficient ventilation, wear suitable respiratory equipment.

Do not eat, drink or smoke in areas where this product is used or stored. Wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed.

Keep away from. Heat, sparks and open flames.

7.3. Specific end use(s)

Foundry material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

all respirable crystalline silica - sum of all types - quartz + cristobalite TWA PEL OSHA (respirable fraction) 0.050 mg/m3
Action Level OSHA (respirable fraction) 0.025 mg/m3.

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8.1. Control parameters

	exposure llimits Kaolin - OSHA PEL total dust 15 mg/m3 TWA, OSHA PEL 5 mg/m3 (respirable fraction)TWA, ACGIH TLV 2 mg/m3 TWA,.

8.1.1. Exposure Limit Values

Kaolin clay. (Kaolin)	WEL 8-hr limit ppm: -	WEL 8-hr limit mg/m3: -
	WEL 15 min limit ppm: -	WEL 15 min limit mg/m3: -
	WEL 8-hr limit mg/m3 total inhalable dust: -	WEL 15 min limit mg/m3 total inhalable dust: -
	WEL 8-hr limit mg/m3 total respirable dust: 2	WEL 15 min limit mg/m3 total respirable dust: -

8.2. Exposure controls

8.2.1. Appropriate engineering controls	Ensure adequate ventilation of the working area. <. OEL: Occupational exposure limit. Provide eye wash station.
8.2.2. Individual protection measures	Wear:. Protective clothing. applicable international Standards are. EN13982, ANSI 103 or =.
Eye / face protection	Avoid contact with eyes. Wear:. Approved safety goggles. safety glasses with side-shields. applicable international Standards are. EN166, ANSI Z87.1 or =.
Skin protection - Handprotection	Avoid contact with skin. Wear suitable gloves. applicable international Standards are. EN374, ASTM F1001 or =.
Respiratory protection	Exposure above the recommended occupational exposure limit (OEL) may cause adverse health effects. After selection by a Qualified person. Wear:. Suitable respiratory equipment. applicable international Standards are. EN140, EN143, ASTM F2704-10 or =.
8.2.3. Environmental exposure controls	Use appropriate container to avoid environmental contamination.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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9.1. Information on basic physical and chemical properties

Appearance	Paste
Colour	Dark grey
Odour	Odourless
pH	>
Melting point	> 1100 °C
Freezing Point	Not applicable.
Initial boiling point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	2 - 3.5
Fat Solubility	Not applicable.
Partition coefficient	No data available
Autoignition temperature	Not applicable.
Viscosity	No data available
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
Solubility	Slightly soluble in water

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Gas group	Not applicable.
Benzene Content	Not applicable.
Lead content	Not applicable.
VOC (Volatile organic compounds)	Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity

Not applicable.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No Significant Hazard.

10.4. Conditions to avoid

Do NOT allow to freeze.

10.5. Incompatible materials

Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous Decomposition Products (silica): Crystalline silica will dissolve in hydrofluoric acid and produce silicone tetrafluoride. Reaction with water or acids generates heat.

Hazardous decomposition products. Carbon dioxide (CO2). Toxic fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	HARMFUL IF SWALLOWED. Toxic: danger of serious damage to health by prolonged exposure if

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11.1. Information on toxicological effects

	swallowed. sodium silicate. ORL RAT LD50 1960 mg/kg. Dermal Rabbit LD50 = 4640 mg/kg. Kaolin clay. ORL RAT LD50 > 5000 mg/kg. Dermal Rat LD50 = > 5000 mg/kg.
Skin corrosion/irritation	Prolonged or repeated exposure may cause irritation to skin and mucous membranes.
Serious eye damage/irritation	Causes serious eye damage.
Respiratory or skin sensitisation	No sensitizaton effects reported.
Germ cell mutagenicity	No mutagenic effects reported.
Carcinogenicity	Known Human Carcinogens (Category 1).
Reproductive toxicity	No observed effect level. No observed effect concentration.
STOT-single exposure	No known adverse health effects.
STOT-repeated exposure	Chronic effects Prolonged inhalation of respirable crystalline silica In 1997, the International Agency for Research on Cancer (IARC) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibers, 1997, Vol. 68, IARC, Lyon, France). In June 2003, the European Commission's Scientific Committee for Occupational Exposure Limits (SCOEL) concluded: "that the main effect in humans of the inhalation of respirable crystalline silica is silicosis. There is sufficient information to conclude that the relative lung cancer risk is increased in persons with silicosis (and apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk. Since a clear threshold for silicosis development cannot be identified, any reduction of exposure will reduce the risk of silicosis." (SCOEL SUM Doc 94-final on respirable crystalline silica, June 2003) There is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis. Worker protection against silicosis should be assured by respecting the existing regulatory occupational exposure limits and implementing additional risk management measures where required (see Section 16).
Aspiration hazard	Based on available data, the classification criteria are not met.
Repeated or prolonged exposure	Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system.

11.1.4. Toxicological Information

	Not applicable.

SECTION 12: Ecological information

12.1. Toxicity

	No data available

12.2. Persistence and degradability

	No data is available on this product.

12.3. Bioaccumulative potential

	Does not bioaccumulate.

Partition coefficient

	Shellshield 301(TM) refractory cement	No data available

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12.4. Mobility in soil

	Not determined.

12.5. Results of PBT and vPvB assessment

	Not determined.

12.6. Other adverse effects

	Not applicable.

Further information

	Aquatic fish - BRACHYDANIO RERIO. LC 50 96hr = 3185 mg/l%.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

	Dispose of in compliance with all. local and national regulations.

Disposal methods

	Contact a licensed waste disposal company.

Disposal of packaging

	Empty containers can be sent for disposal or recycling.

SECTION 14: Transport information

14.1. UN number

	The product is not classified as dangerous for carriage.

14.2. UN proper shipping name

	The product is not classified as dangerous for carriage.

14.3. Transport hazard class(es)

	The product is not classified as dangerous for carriage.

14.4. Packing group

	The product is not classified as dangerous for carriage.

14.5. Environmental hazards

	The product is not classified as dangerous for carriage.

14.6. Special precautions for user

	The product is not classified as dangerous for carriage.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

	The product is not classified as dangerous for carriage.

Further information

	The product is not classified as dangerous for carriage.

SECTION 15: Regulatory information

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

Regulations	U.S. FEDERAL REGULATIONS: Shellshield 301. CERCLA 103 Reportable Quantity: is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations. SARA TITLE III: Hazard Category For Section 311/312: Acute health and Chronic health Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

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

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

US State Regulations: This product can expose you to chemicals including Silica, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Right to Know Lists: NJ, PA, MN Kaolin CAS 1332-58-7.

15.2. Chemical safety assessment

No data is available on this product.

SECTION 16: Other information

Other information

Revision

This document differs from the previous version in the following areas:.
2 - Other hazards.
2 - Hazard pictograms.
5 - 5.2. Special hazards arising from the substance or mixture.
6 - 6.1. Personal precautions, protective equipment and emergency procedures.
6 - 6.2. Environmental precautions.
6 - 6.3. Methods and material for containment and cleaning up.
8 - 8.2.1. Appropriate engineering controls.
11 - Acute toxicity.

Text of Hazard Statements in Section 3

Met. Corr. 1: H290 - May be corrosive to metals.
Acute Tox. 4: H302 - Harmful if swallowed.
Skin Irrit. 2: H315 - Causes skin irritation.
Eye Dam. 1: H318 - Causes serious eye damage.
Eye Irrit. 2: H319 - Causes serious eye irritation.
Carc. 1A: H350 - May cause cancer .
STOT RE 1: H372 - Causes damage to organs through prolonged or repeated exposure .

Further information

Training
Workers must be informed of the presence of crystalline silica and trained in the proper use and handling of this product as required under applicable regulations.

The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.