SAFETY DATA SHEET

according to Regulation (EU) 2015/830

C-1 Core Mix [NA]

Revision 4

Revision date 2021-07-28

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

1.1. Product identifier

Product name	C-1 Core Mix [NA]

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	SDS@ransom-randolph.com
Email address of the competent person	dyouel@ransom-randolph.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	Carc. 1A: H350; 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	Carc. 1A: H350 - May cause cancer inhalation. STOT RE 1: H372 - Causes damage to organs (lungs) through prolonged or repeated exposure inhalation.
Precautionary Statement: Prevention	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood.

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2.2. Label elements

	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. P285 - In case of inadequate ventilation wear respiratory protection.
Precautionary Statement: Response	P308+P313 - IF exposed or concerned: Get medical advice/attention. P314 - Get medical advice/attention if you feel unwell.
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	Zircon contains trace amounts of naturally occurring uranium, thorium, and radium. Product contains crystalline silica.

Further information

	Based on available data, the classification criteria are not met. 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
silica, viterous (Silica, fused respirable dust)		60676-86-0	262-373-8		30 - 40%	
zirconium silicate		14940-68-2			40 - 50%	
silica (cristobalite conc. >/= 1.0 %)		14464-46-1	238-455-4		10 - 20%	Carc. 1A: H350; STOT RE 1: H372;
quartz (conc. >/= 1.0%)		14808-60-7	238-878-4		0.5 - 1%	Carc. 1A: H350; STOT RE 1: H372;
quartz (conc. < 1.0%)		14808-60-7	238-878-4		0 - 0.5%	Carc. 1A: H350;

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.

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.

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

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.

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. Wear suitable respiratory equipment when necessary.

6.2. Environmental precautions

No environmental requirements.

6.3. Methods and material for containment and cleaning up

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 raising dust. Ensure adequate ventilation of the working area. 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.

7.3. Specific end use(s)

Foundry material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

exposure limits - Silica, vitreous (fused, amorphous) 80 mg/m3 / (% Silica), TWA PEL (respirable fraction).

exposure limits - Crystalline Silica, Cristobalite - 0.025 mg/m3 TWA ACGIH TLV (respirable fraction); 50 ug/m3 8-hr TWA PEL (respirable fraction).

exposure limits - Zirconium silicate 10 mg/m3 STEL ACGIH (respirable fraction)
5 mg/m3 TWA OSHA PEL (respirable fraction).

8.1.1. Exposure Limit Values

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8.1.1. Exposure Limit Values

silica, viterous (Silica, fused respirable dust)	WEL 8-hr limit ppm: -	WEL 8-hr limit mg/m3: 0.08
	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: -	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.
8.2.2. Individual protection measures	Protective clothing.
Eye / face protection	In case of splashing, wear:. Approved safety goggles. safety glasses with side-shields.
Skin protection - Handprotection	Wear suitable gloves.
Respiratory protection	Suitable respiratory equipment.
8.2.3. Environmental exposure controls	Not normally required.
Occupational exposure controls	Appropriate local exhaust ventilation is required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Powder
Colour	Off white
Odour	Slight
pH	4 - 7
Melting point	No data available
Freezing Point	Not applicable.
Initial boiling point	Not applicable.
Flash point	Not applicable.
Flammability (solid, gas)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	3.6 (H2O = 1 @ 20 °C)
Fat Solubility	Not applicable.
Partition coefficient	Not applicable.
Autoignition temperature	Not applicable.
Viscosity	No data available
Explosive properties	Not applicable.
Solubility	Slightly soluble in water

9.2. Other information

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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.

10.5. Incompatible materials

No Significant Hazard.

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 (Zircon): Zirconium silicate will disassociate to Zirconium Dioxide (ZRO2) and Silicon dioxide (SiO2) when heated above 1540 degrees Celsius. Hazardous Polymerization: Will not occur.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	Harmful by inhalation.
Skin corrosion/irritation	Prolonged or repeated exposure may cause irritation to skin and mucous membranes.
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."

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11.1. Information on toxicological effects

	(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). This product contains trace quantities of naturally occurring radioactive uranium, thorium and radium (106-120 Picocuries/gram). Overexposure to respirable dust containing radioactive materials may cause lung cancer. Zirconium silicate is exempt from NRC regulations for source material per 10 CFR 40, since it falls under the definition of material containing less than 0.05% uranium or thorium. However, calculations show that observance of 2-2.8 mg/m3 of respirable dust will, under voluntary guidelines, ensure that intake is less than 10% of the annual limits on intake (ALS) specified in 10 CFR 20.1502(B) and NRC Standards for the protection against radiation for uranium, thorium, radium and radioactive daughter decay products.).
Aspiration hazard	No Significant Hazard.
Repeated or prolonged exposure	Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system.

11.1.4. Toxicological Information

	No data available

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

	C-1 Core Mix [NA] Not applicable.

12.4. Mobility in soil

	Not determined.

12.5. Results of PBT and vPvB assessment

	Not determined.

12.6. Other adverse effects

	Not applicable.

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

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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: C-1 Core Mix. 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: 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 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. U.S. STATE REGULATIONS California Proposition 65: This product contains the following substances known to the State of California to cause cancer: Crystalline Silica as Quartz and Cristobalite (< 35%) INTERNATIONAL REGULATIONS: Canadian Environmental Protection Act: All of the components in this product are listed on the Domestic Substances List (DSL). Canadian WHMIS Classification: Class D Division 2A European Inventory of New and Existing Chemicals Substances (EINECS): All of the components in this product are listed on the EINECS inventory. Australian Inventory of Chemical Substances: All of the components in this product are listed on the AICS for Australia. China Inventory of Existing Chemicals and Chemical Substances: All of the components in this product are listed on the IECSC for China. Japanese Existing and New Chemical Substances: All of the components in this product are listed on the Japanese ENCS list.

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

	Korean Existing Chemicals List: All of the components in this product are listed on the KECL for Korea. Philippine Inventory of Chemicals and Chemical Substances: All of the components in this product are listed on the PICCS.

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 - 2.1. Classification of the substance or mixture. 15 - Labelling. 15 - Hazard Statement. 15 - Safety phrases.
Text of Hazard Statements in Section 3	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.