RANDOM PRODUCTS, INC.

SAFETY DATA SHEET

Section 1 Identification of the Product and Company

1.1 Product Name:	Flap disc, Type 27 (A) and 29 (B)
1.2 Company name:	RANDOM PRODUCTS INC
Address:	10221 Sweet Valley Drive
	Cleveland, OH 44125
	USA
Phone:	216-986-1766
1.3 Product use:	For light material removal, blending and polishing

Section 2 Hazards Identification

2.1 Description of hazards

Respiratory	Disc dust is a respiratory irritant
Skin	Disc dust and fiberglass reinforcement is a skin irritant
Ingestion	Acute product toxicity unknown
Eyes	Disc dust is an eye irritant
Hazard Status	This product is classified as non-hazardous under OSHA HCS 29 CFR 1910.1200

2.2. Precautionary statements

Wear Respirator, eye protection, and protective clothing when using product
Product will produce sparks and debris when in use, avoid using product near reactive or flammable substances or electrical equipment
Discard if product comes in contact with water

Section 3 Composition

Ingredient	Formula	% Weight	OSHA regulated	CAS #
Aluminum Oxide	Al_2O_3	15 – 30	No	1344-28-1
Zirconium Oxide	ZrO_2	0 - 15	No	1314-23-4
Coating Filler		0 - 15	No	15096-52-3
Cloth			No	
Cured resin		15 - 20	No	
Fiberglass backing		39 - 50	No	65997-17-3
Zinc	Zn		No	7440-66-6

Section 4 First Aid Measures

4.1 First Aid for exposure

Dust Inhalation:	Terminate exposure and remove to fresh air. Obtain medical assistance.
Ingestion:	Obtain medical assistance.
Absorption:	N/A
Skin contact:	Terminate exposure and remove to fresh air. Obtain medical assistance.
Eye:	Flush eyes with water

4.2 Signs and Symptoms of Exposure

Acute:	May cause coughing and shortness of breath during grinding. Skin irritation. Eye irritation.
Chronic:	Decreased lung capacity

Section 5 Fire Fighting Measures

5.1	Means Of Extinction:	Water or carbon dioxide
5.2	Unusual Fire or Explosion Hazards:	None
	Flammable Properties:	None
5.3	Special Fire Fighting Procedures:	Consult NFPA or CFPA procedures

Section 6 Accidental Release Measures

Normal clean up procedures should be used if material is released.
Gloves and a respirator are recommended to clean up used material.

Section 7 Handling, Storage and Use Procedures

7.1 Handling: Avoid damage to Disc. Do not drop. Do not use a disc that has been damaged. Always handle in accordance with ANSI B7.1.

7.2 Storage: Avoid excessive temperatures in storage. Store in a dry area. Discard if disc gets wet.

Section 8 Exposure controls and Personal Protection

8.1 Exposure limits

Chemical	**OSHA PEL**	**ACGIH TLV**
Aluminum Oxide	15 mg/m3	10mg/m3
Zirconium Oxide	N/A	10mg/m3
cured resin	N/A	N/A
Cloth	N/A	N/A
Fiber Glass	5mg/m3	10mg/m3

8.2 Personal Protection requirements and referrals

Respiratory:	OSHA/NIOSH approved respirator. See OSHA 29 CFR 1910.134/European Standard EN 149
Ventilation:	Engineering Controls recommended. See ANSI Z43.1. Refer to OSHA 29 CFR 1910.94.
Protective Gloves:	Leather gloves
Eye Protection:	Protective eyewear such as safety glasses or face shield. Refer to OSHA 29 CFR 1910.133.
Hearing Protection:	Hearing protection such as approved ear muffs or ear plugs. Refer to OSHA 29 CFR 1910.95.
Body Protection:	Leather apron, chaps, or shoe coverings to shield from heavy spark showers in operation.
Hygienic Practices:	Wash with soap and water after handling and grinding.

Section 9 Physical and Chemical Properties

Boiling Point	N/A	Specific Gravity	2 - 4
Vapor Pressure *(mm Hg)*	N/A	Melting Point	N/A
Vapor Density *(AIR=1)*	N/A	Evaporation Rate (Butyl Acetate=1)	N/A
Solubility in Water	Slight	Appearance	Dark colored solid
Lower And Upper Explosion Limits	N/A	Odor	Plastic
Flammable Limits	N/A	Degradation Temperature	Starts at 250 °C
Flash Point	N/A		

Section 10 Stability and Reactivity

Avoid excessive moisture and humidity, temperature extremes and contact with acids or solvents
Not incompatible with any materials
No known hazardous reactions will occur
At temperatures exceeding 250° C hazardous or toxic decomposition products may be generated.

Section 11 Toxicological information

11. 1 Acute Toxicity Data

Chemical	Route of Exposure	Acute LD50
Aluminum Oxide	oral	>5000 mg/kg (rat)
Zirconium Oxide	oral	>8800 mg/kg (mouse)
cured resin	N/A	N/A
Cloth	N/A	N/A
Fiberglass	N/A	N/A

11.2 Toxicological Effects

Dust Inhalation	Coughing and shortness of breath, aggravation, decreased lung capacity of medical conditions such as asthma or emphysema
Ingestion	Large quantity consumption can cause stomach pain
Absorption	N/A
Skin contact	Grinding wheel may cause abrasions Dust may cause skin irritation
Eye	Dust or fumes may cause eye irritation
Carcinogenicity	Unknown
Mutagenicity	Unknown
Reproductive Effects	Unknown

Section 12 Ecological Information

No data available.

Section 13 Disposal Considerations

Dispose in accordance to Local and Federal Regulations.

Section 14 Transport Information

Not regulated as a hazardous material for transport.

Section 15 Regulatory Information

No data available.

Section 16 Other Information

SDS Revision Date: August 25, 2015

Reason for update: Require new SDSs to be in a uniform format

The information and recommendations set forth herein are taken from sources and references believed to be accurate and complete as of the date hereof. However, Random Products Inc makes no expressed or implied warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

Voluntary product information based on the format of a Safety Data Sheet for organic bonded abrasives

1. Identification of Product and Company:

1.1 Identification of product:

Resin bonded "PFX" cutoff and grinding wheels with Aluminum oxide and Zirconia

1.2 Use of the product

Organic bonded abrasive used for cutting and grinding of various materials

1.3 Company identification

RANDOM PRODUCTS, INC
10221 Sweet Valley Drive
PO Box 25065
Cleveland, Ohio 44125
Phone: 216-986-1766
Fax: 216-986-1778
E-mail: info@randomproductsinc.com
Web: www.randomproductsinc.com

1.4 Emergency number:

As per your local directory. In case of accident, call 911 and seek immediate medical treatment

2. Hazards Identification:

2.1. Classification: Not applicable

Abrasives are articles and not dangerous substances or mixtures according to directive 1999/45/EC or Regulation (EC) N° 1272/2008.

See also section 8 and 16.

2.2. Label elements: Abrasives are articles and not dangerous substances or mixtures and therefore no labelling is required according to directive 1999/45/EC or Regulation (EC) N° 1272/2008.

2.3. Other hazards:

By cutting and grinding do not inhale dust.

3. Composition/Information on Ingredients.

3.1 Chemical Characterization:

The product contains the following ingredients which are classified according to 67/548/EEC or Regulation (EC) Nr. 272/2008 or for which a community occupational exposure limit value exists:

Substance	EC-N°	CAS-N°	REACH Registration N°	Conc.	Classification acc. to Regulation (EC) N° 1272/2008 (CLP)		Classification acc. to Directive 67/548/EWC
					Hazard classes/ hazard categories	Hazard statements	
Aluminium oxide	215-691-6	1344-28-1		>40 %			
Aluminum oxide, high-temp. fusion-redn. products with zirconium oxide	273-262-9	68955-26-0		<30 %			
Iron sulphide	215-268-6	1317-37-9		<9 %			
Potassium Aluminum fluoride (bonded)	262-153-1	60304-36-1		<1 %			Xn, Xi; 22-36/37/38
Phenol resin (cured)		9002-35-4		<20 %			

3.2 Additional information: For full text of H- and R-phrases see section 16.

4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Not possible, due to the form of the product. By grinding dust may cause coughing, shortness of breath. Remove person to fresh air. Apply artificial respiration if needed. Obtain first aid or medical assistance.

Eye contact: Not possible, due to the form of the product. By grinding dust may irritate eyes. Wash with large amounts of water and obtain medical assistance if needed.

Skin contact: No harmful effects known.

Ingestion: Not likely, due to the form of the product; if necessary contact physician Not special precautions.

Note to physician: Not available.

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

Not known.

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

Not relevant. Treat symptomatically.

5. Fire Fighting Measures

5.1 Suitable extinguishing media:

Water, foam, sand, powder or $C0_2$ as appropriate for surrounding materials.

5.2 Special hazards arising from the product:

Toxic fumes may occur. Use respiratory protective equipment.

5.3 Advice for fire fighters:

Extinguishing materials should be selected according to the surrounding area.

5.4 Protective equipment:

Wear full protective suit and breathing apparatus.

6. Accidental Release Measures

6.1 Personal precautions:

By grinding do not inhale dust. See also item 8.

6.2 Environmental precautions:

Do not discard into environment.

6.3 Methods for cleaning up / taking up:

Take up mechanically. Dispose according to item 13.

7. Handling and Storage

7.1 Handling:

Special technical measures are not necessary. When used and handled according to specification, the product does not have any harmful effects, according to our experience and the information provided to us. Handle with adequate ventilation for dust.

7.2 Storage:

Store in a dry place.

Recommendation: Follow instructions of grinding machine manufacturers and the relevant national regulations.

In addition, observe the safety recommendations of the manufacturer. See FEPA regulations -Safety Code-European Safety Regulation for correct use of wheels.

8. Exposure Controls / Personal Protection

8.1. Control parameters: Before grinding it is recommended to perform a risk assessment and to use personal protection equipment accordingly.

Occupational exposure limit values and/or biological limit values: Keep exposure to the following components under surveillance. (Observe also the regional official regulations)

MAC (for dust): 6 mg/m^3

Note: Hazardous dust of the workpiece material may be generated during grinding and/or sanding operations. National regulations for dust exposure limit values have to be taken into consideration.

8.2. Exposure controls: Individual protection measures

Respiratory protection: Use respiratory protective equipment (*)

Hand protection: Wear protective gloves (*)

Eye protection: Wear protective goggles or face shield (*)

Hearing protection: Use hearing protection (*)

Body protection: Use protective clothing (*)

*** Type depends on specific application and material being ground**

DO NOT USE DAMAGED ABRASIVE WHEELS FOR ANY CUTTING OR GRINDING OPERATIONS.

DO NOT USE CUT OFF WHEELS FOR ANY GRINDING OPERATIONS.

9. Physical and Chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid.

Colour: Black.

Form: Different.

Solubility in water: Not applicable.

9.2. Other information: None.

10. Stability and Reactivity

10.1 Stability: Stable if handled and stored according to specifications. See also item 7.

10.2 Conditions to be avoided: See item 7. The products are stable when handled or stored correctly. Protect from atmospheric moisture of water.

10.3 Possibility of hazardous reactions: No dangerous reactions known.

10.4 Hazardous decomposition products: At temperatures exceeding 250° C hazardous or toxic decomposition products may be generated.

10.5. Incompatible materials: No dangerous reactions known.

11. Toxicological Information

11.1. Information on toxicological effects: When are used and handled according to specifications, the products do not have any harmful effects according to our experience and the information provided to us. No toxicological effects if inhaled or swallowed or with eye or skin contact are known. See also section 8.

12. Ecological Information

12.1. Toxicity: No effects known.

12.2. Persistence and degradability: No biodegradable potentials known.

12.3. Bio accumulative potential: No potentials known.

12.4. Mobility in soil: No potentials known.

12.5. Results of PBT and vPvB assessment: Not relevant.

12.6. Other adverse effects: No effects known.

13. Disposal Considerations

13.1. Waste treatment methods

Product: Follow national and regional regulations.

- Due to the ingredients and properties dispose as non-hazardous waste (2000/532/EC) is possible if no hazardous materials are added to the abrasives. (EWC – Nr. 120121),
- Due to the ingredients and properties dispose as hazardous waste (2000/532/EC) (EWC – Nr. 120120*)

Packing: Follow national and regional regulations.

14. Transport Information

The product is not covered by international regulation on the transport of dangerous goods.

15. Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the product: No specific labelling requirements under respective EC directives.

15.2. Chemical safety assessment: Not relevant.

16. Other Information

The product does not contain Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated biphenyls, Polybrominated diphenyl ethers, according to RoHS directive 2002/95/EC.

The above information is based on our current standard of knowledge and does not constitute any warranty of conditions of the product. The information does not form part of any contractual agreement. It remains the user's responsibility to adhere existing laws and regulations.

Literature and data sources:

Directive (1999/45/EC), amended by Regulation (EC) N°. 1907/2006.
Directive (67/548/EWG), amended by Directive 2009/2/EC.
REACH Regulation (EC) Nr. 1907/2006, amended by Regulation (EC) N° 552/2009.
Regulation (EC) N° 1272/2008, amended by Regulation (EC) N° 790/2009.
Directive 2000/39/EG, amended by Directive 2009/161/EC
Directive 75/324/EWG, amended by Regulation (EC) N° 219/2009.
Transport regulations according to ADR, RID und IATA.

According to Directive 67/548/EWC:

R20	Harmful by inhalation.
R48/23/25	Toxic; danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R22	Harmful if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.

Additional Information: To obtain further information see section 1

Record of Revision:

SDS PFX 001

The above information is based on our standard and knowledge and does not constitute any warranty of conditions of the product.

The information does not conform part of any contractual agreement. It remains the user's responsibility to adhere to existing laws and regulations.

UNITED ABRASIVES SAIT

SAFETY DATA SHEET
Coated Abrasives
SDS #4

1. IDENTIFICATION

Product Identity / Trade Name: Coated Abrasives - Resin over Resin, Cotton Cloth, Fiber, Polyester Backing or Paper (Dry Wall Sheets, Cloth or Paper Sheets, Flap Wheels, Flap Discs, Fiber Discs, PSA Cloth Discs, Paper Stearate Discs, Shop Rolls, Abrasive Belts, Floor Sanding Products)

Product Use: Abrasive materials used for sanding metals, concrete, masonry and building materials.
Restriction on Use: Use only as directed

Manufacturer United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131 **Emergency Phone**: (860) 456-7131

Date of Preparation: June 14, 2018

2. HAZARD(S) IDENTIFICATION

As sold, this product is a manufactured article. During processing, dust generated has the following hazards:

Classification:

Physical	Health
Not Hazardous	Specific Target Organ Toxicity – Repeated Exposure Category 1 (Respiratory tract, teeth, and bones)

Hazards not otherwise classified: None

Labeling Elements:

Danger!

Hazard statement(s)
H372 Causes damage to respiratory tract, teeth, and bones through prolonged or repeated exposure.

Precautionary statement(s)
P260 Do not breathe dust.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P314 Get medical attention if you feel unwell.
P501 Dispose of contents and container in accordance with local and national regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Aluminum Oxide	1344-28-1	0-50
and/or Silicon Carbide	409-21-2	0-50
and/or Garnet	12178-41-5	0-30
and/or Zirconium Oxide	1314-23-4	0-30
Cured Phenolic or Urea Formaldehyde Resin	N/A	5-40
and/or Calcium Carbonate	1317-65-3	0-25
and/or Calcium Stearate	1592-23-0	5-10
and/or Calcium Sulfate	7778-18-9	0-5
and/or Zinc Stearate	557-05-1	0-10
and/or Cryolite (as fluorides)*	15096-52-3	0-15
and/or Potassium Fluoroborate	14075-53-7	5-0
and/or Flame Retardant	Proprietary	0-8
And/or Kaolin	1332-58-7	0-5
and/or Crystalline Silica, Quartz*	14808-60-7	0.1-1
Cotton or Polyester Cloth	N/A	15-55
and/or paper backing	N/A	20-65
and/or fibre	N/A	35-70

* Test data indicates that the crystalline silica in this product is inextricably bound in a manner that no exposure occurs during normal use and handling. Therefore this product is not classified as a carcinogen.

The specific identity and/or exact percentage has been withheld as a trade secret.

4. FIRST-AID MEASURES

Ingestion: If sanding dust is swallowed, seek medical attention.
Inhalation: If overexposed to sanding dust, remove victim to fresh air and get medical attention.
Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.
Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

Most important symptoms/effects, acute and delayed: May cause mechanical eye and skin irritation. Inhalation of duct may cause nose, throat and upper respiratory irritation. Exposure to dust generated from processing the base material or coatings may present additional health hazards.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is generally not required.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding fire.

Specific hazards arising from the chemical: This product is not combustible, however, consideration must be given to the potential fire/explosion hazards from the base material being processed. Many materials create flammable/explosive dusts or turnings when sanded, machined or ground.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate respirator and protective clothing as needed to avoid eye contact and inhalation of dust.

Environmental precautions: Avoid release into the environmental. Report spills as required to authorities.

Methods and materials for containment and cleaning up: Pick up, sweep up or vacuum and place in a container for disposal. Minimize generation of dust.

7. HANDLING AND STORAGE

Precautions for safe handling: Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling and use, especially before eating, drinking or smoking. Consider potential exposure to components of the base materials or coatings being sanded or ground. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

Conditions for safe storage, including any incompatibilities: Store in a dry location.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Aluminum Oxide	1 mg/m3 ACGIH TLV (respirable fraction) (as Al metal) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Silicon Carbide	3 mg/m3 TWA ACGIH TLV (respirable fraction) 10 mg/m3 TWA ACGIH TLV (inhalable fraction) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Garnet	None Established
Zirconium Oxide (as Zr)	5 mg/m3 TWA ACGIH TLV 10 mg/m3 STEL ACGIH TLV 5 mg/m3 TWA OSHA PEL
Cured Phenolic or Urea Formaldehyde Resin	None Established
Calcium Carbonate	15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Calcium Stearate	None Established
Calcium Sulfate	10 mg/m3 TWA ACGIH TLV (inhalable) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Zinc Stearate	10 mg/m3 TWA ACGIH TLV 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Cryolite (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Potassium Fluoroborate (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Potassium Fluoroborate (as borates)	2 mg/m3 TWA ACGIH TLV (Inhalable)

	6 mg/m3 TWA ACGIH STEL (Inhalable)
Flame Retardant	None Established
Kaolin	2 mg/m3 TWA ACGIH TLV (respirable) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Cotton or Polyester Cloth	None Established
Crystalline Silica, Quartz	10 mg/m^3 (respirable) OSHA PEL % Silica + 2 30 mg/m^3 (total dust) OSHA PEL % Silica + 2 0.05 mg/m3 TWA OSHA PEL (respirable dust) 0.025 mg/m3 TWA ACGIH TLV (Respirable)
Paper Backing	None Established
Fiber	None Established

Note: Consider also components from base materials and coatings.

Appropriate engineering controls: Use local exhaust or general ventilation as required to minimize exposure to dust and maintain the concentration of contaminants below occupational applicable limits.

Individual protection measures, such as personal protective equipment:
Respiratory protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being ground in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin protection: Cloth or leather gloves recommended.
Eye protection: Safety goggles or face shield over safety glasses with side shields.
Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Cloth or paper coated with abrasive material in sheets, discs or on wheels.
Odor: No Odor

Odor threshold: Not applicable	**pH:** Not applicable
Melting point/freezing point: Not applicable	**Boiling Point:** Not applicable
Flash point: Not applicable	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not combustible	
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:**
Relative density: Not applicable	**Solubility(ies):** Not soluble
Partition coefficient: n-octanol/water: Not applicable	**Auto-ignition temperature:** Not applicable
Decomposition temperature: Not applicable	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical stability: Stable.
Possibility of hazardous reactions: None known.
Conditions to avoid: None known
Incompatible materials: None known
Hazardous decomposition products: Dust from sanding could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being sanded or coatings applied to the base material.

11. TOXICOLOGICAL INFORMATION

Routes of exposure:
Inhalation: Dust may cause respiratory irritation.
Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract.
Skin contact: None expected under normal use conditions. Rubbing product across the skin may cause mechanical irritation or abrasions.
Eye contact: Dust may cause eye irritation. Dust particles may cause abrasive injury to the eyes.

Chronic effects from short- and long-term exposure: Long-term overexposure to respirable dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Chronic effects may be aggravated by smoking. Excessive inhalation of respirable crystalline silica dust may cause may cause a progressive, disabling and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. Test data indicates that the crystalline silica in this product is inextricably bound in a manner that no exposure occurs during normal use and handling. Prolonged overexposure to fluorides may cause a bone condition, fluorosis.

Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being sanded. Most of the dust generated during sanding is from the base material being sanded and the potential hazard from this exposure must be evaluated.

Carcinogenicity: Crystalline silica quartz is listed as "Carcinogenic to Humans" (Group 1) by IARC and "Known to be a Human Carcinogen" by NTP. The crystalline silica is inextricably bound in a manner that no exposure occurs during normal use and handling. None of the other components are listed as a carcinogen or potential carcinogen by OSHA, NTP or IARC.

Numerical measures of toxicity:
Aluminum Oxide: LD50 Oral rat >5,000 mg/kg, Inhalation rat LC50 >7.6 mg/L/1 hr
Silicon Carbide: Oral rat LD50 >2000 mg/kg, Dermal rat LD50 >2000 mg/kg
Garnet: No toxicity data available
Zirconium Oxide: Oral rat LD50 > 5000 mg/kg, Inhalation rat LC50 > 4.3 mg/L/4 hr.
Calcium Carbonate: No toxicity data available
Calcium Stearate: No toxicity data available
Calcium Sulfate: Oral rat LD50>1581 mg/kg, Inhalation rat LC50 >3.26 mg/L/4 hr
Zinc Stearate: LD50 oral rat > 1581 mg/kg, LC50 inhalation rat > 3.26 mg/L
Cryolite: LD50 oral rat > 10000 mg/kg, LC50 inhalation rat > 200 mg/L, LD50 dermal rabbit > 2000 mg/kg
Potassium Fluoroborate: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 >5.3 mg/L/4 hr
Kaolin: Oral rat LD50 >5000 mg/kg
Crystalline Silica, Quartz: No toxicity data available

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Aluminum Oxide: 96 hr LC50 Pimephales promelas 35 mg/L
Silicon Carbide: No data available
Garnet: No data available
Zirconium Oxide: 96 hr LC50 Danio rerio >100 mg/L, 48 hr EC50 daphnia magna >100 mg/L
Calcium Carbonate: No data available
Calcium Stearate: No data available
Calcium Sulfate: 96 hr LC50 Pimephales promelas >1970 mg/L, 48 hr EC50 daphnia magna >79 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata >79 mg/L
Zinc Stearate: No data available
Cryolite: Danio rerio LC50 > 100 mg/L/96hr
Potassium Fluoroborate: 96 hr LC50 Leuciscus idus 760 mg/L, 48 hr EC50 daphnia magna >100 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata >100 mg/L
Kaolin: No data available
Crystalline Silica, Quartz: 72 hr LC50 carp >10,000 mg/L

Persistence and degradability: Biodegradation is not applicable to inorganic compounds.
Bioaccumulative potential: No data available
Mobility in soil: No data available.
Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated	None	None	
TDG	None	Not Regulated	None	None	

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None identified.

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Classified as per Section 2 of this SDS.

SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting):

Components	C.A.S. #	WT %
Zinc Stearate (as zinc compounds)	557-05-1	0-10

(Only in 9x11 Sheets - No Load Stearate, Fileboard Sheets - No Load, PSA Paper Discs - Stearate and Premium and Hook and Loop Paper Discs - Premium)

16. OTHER INFORMATION

NFPA Rating: Health = 1 Flammability = 0 Instability = 0
HMIS Rating: Health = 1 Flammability = 0 Physical Hazard =0

Date Previous Revision: 3/31/15
Date This Revision: 6/14/18
Revision Summary:
6/14/18: Three year review. Change to Section 8, 15 & 16.
3/31/15: Changed all sections. Updated format to GHS.
12/01/09: Section 8 Exposure Limits; Comprehensive Review

The preceding information is believed to be correct and current as of the date of preparation of this Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.

UNITED ABRASIVES SAIT

SAFETY DATA SHEET
Vitrified Grinding Wheels
SDS #3

1. IDENTIFICATION

Product Identity / Trade Name: Vitrified Grinding Wheels, Including Surface Grinding Wheels (Type 1) and Mounted Points.

Product Use: Abrasive materials used for cutting and grinding of metals, concrete, masonry and building materials.

Restriction on Use: Use only as directed

Manufacturer: United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131 **Emergency Phone**: (860) 456-7131

Date of Preparation: June 14, 2018

2. HAZARD(S) IDENTIFICATION

Classification: Not classified as hazardous as defined by the GHS and OSHA 29 CFR 1910.1200.

Label Elements: None Required.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Aluminum Oxide	1344-28-1	0-100
and/or Silicon Carbide	409-21-2	0-100

The specific identity and/or exact percentage has been withheld as a trade secret.

4. FIRST-AID MEASURES

Ingestion: If grinding dust is swallowed, seek medical attention.
Inhalation: If overexposed to grinding dust, remove victim to fresh air and get medical attention.
Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.
Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

Most important symptoms/effects, acute and delayed: Eye and skin contact with grinding dust may cause mechanical irritation.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is generally not required.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding fire.

Specific hazards arising from the chemical: This product is not combustible, however, consideration must be given to the potential fire or explosion hazards from the base material being processed. Many materials create flammable or explosive dusts or turnings when machined or ground.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate respirator and protective clothing as needed to avoid eye contact and inhalation of dust.

Environmental precautions: Avoid release into the environmental. Report releases as required by local, state and federal authorities.

Methods and materials for containment and cleaning up: Pick up, sweep up or vacuum and place in a container for disposal. Minimize generation of dust.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid breathing dust. Use with adequate ventilation. Avoid eye and skin contact with grinding dust. Wear suitable gloves, eye protection and appropriate protective clothing according to the operation. Wash thoroughly after handling. Consider potential exposure to components of the base materials or coatings being ground. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

Methods and materials for containment and cleaning up: Pick up, sweep up or vacuum and place in a container for disposal. Minimize generation of dust.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Aluminum Oxide	1 mg/m3 ACGIH TLV (respirable fraction) (as Al metal) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Silicon Carbide	3 mg/m3 TWA ACGIH TLV (respirable fraction) 10 mg/m3 TWA ACGIH TLV (inhalable fraction) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)

Note: Consider also components of base materials and coatings being ground.

Appropriate engineering controls: Use local exhaust or general ventilation as required to minimize exposure to dust and maintain the concentration of contaminants below the exposure limits.

Individual protection measures, such as personal protective equipment:
Respiratory protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being ground in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and

concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin protection: Cloth or leather gloves recommended.
Eye protection: Safety goggles or face shield over safety glasses with side shields.
Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Black, gray, brown, green or reddish colored solid wheel.
Odor: No Odor

Odor threshold: Not applicable	**pH:** Not applicable
Melting point/freezing point: Not applicable	**Boiling Point:** Not applicable
Flash point: Not applicable	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not combustible	
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:**
Relative density: Not applicable	**Solubility(ies):** Not soluble
Partition coefficient: n-octanol/water: Not applicable	**Auto-ignition temperature:** Not applicable
Decomposition temperature: Not applicable	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical stability: Stable.
Possibility of hazardous reactions: None known.
Conditions to avoid: None known.
Incompatible materials: None known.
Hazardous decomposition products: Dust from grinding could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being ground or coatings applied to the base material.

11. TOXICOLOGICAL INFORMATION

Routes of exposure:
Inhalation: Dust may cause respiratory irritation.
Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract.
Skin contact: None expected under normal use conditions. Rubbing product across the skin may cause mechanical irritation or abrasions.
Eye contact: Dust may cause eye irritation. Dust particles may cause abrasive injury to the eyes.

Chronic effects from short- and long-term exposure: Long-term overexposure to respirable dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Chronic effects may be aggravated by smoking. Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being ground. Most of the dust generated during grinding is from the base material being ground and the potential hazard from this exposure must be evaluated.

Numerical measures of toxicity: This product and its components are not acutely toxic.
Aluminum Oxide: LD50 Oral rat >5,000 mg/kg, Inhalation rat LC50 >7.6 mg/L/1 hr
Silicon Carbide: Oral rat LD50 >2000 mg/kg, Dermal rat LD50 >2000 mg/kg

Carcinogenicity: None of the components are listed as a carcinogen or potential carcinogen by OSHA, NTP or IARC.

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Aluminum Oxide: 96 hr LC50 Pimephales promelas 35 mg/L
Silicon Carbide: No data available

Persistence and degradability: Biodegradation is not applicable to inorganic compounds.
Bioaccumulative potential: No data available
Mobility in soil: No data available.
Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated	None	None	
TDG	None	Not Regulated	None	None	

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None identified.

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Classified as per Section 2 of this SDS.

SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting): None

16. OTHER INFORMATION

NFPA Rating: Health = 1 Flammability = 0 Instability = 0
HMIS Rating: Health = 1 Flammability = 0 Physical Hazard =0

Date Previous Revision: 3/31/15
Date This Revision: 6/14/18
Revision Summary:
6/14/18: Three year review. Change to Section 8, 15 & 16.
3/31/15: Changed all sections. Updated format to GHS.
5/23/12: Section 3 Components; Section 5 Removed Flammable Limits; Section 8 Exposure Limits; Comprehensive Review

The preceding information is believed to be correct and current as of the date of preparation of this Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.

UNITED ABRASIVES, INC.

SAFETY DATA SHEET

Resinoid Bonded Abrasives for Cutting and Grinding
Concrete, Masonry and Building Materials
SDS #2

1. IDENTIFICATION

Product Identity / Trade Name: Grinding and Cutting Wheels, Resinoid (Type 1, Type 27, Type 28, Type 29), Cup Wheels (Type 11) Cones and Plugs (Type 16, Type 17 and Type 18) Mounted Point.

Product Use: Abrasive materials used for cutting and grinding concrete, masonry and building materials.
Restriction on Use: Use only as directed

Manufacturer: United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131 **Emergency Phone**: (860) 456-7131

Date of Preparation: February 2, 2017

2. HAZARD(S) IDENTIFICATION

Classification: This product is not classified as hazardous in accordance with the OSHA Hazard Communication Standard (29CFR 1910.1200).

Physical	Health
Not Hazardous	Not Hazardous

Hazards not otherwise classified: Most of the dust/fumes generated in the cutting and grinding process is from the base material. The exposure to the dust/fumes from the material the potential hazard from this exposure must be evaluated.

Label Elements:
None required.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Silicon Carbide	409-21-2	0-95
Cured Phenolic Resin	N/A	1-30
Nitrile Compounds	N/A	1-20
Fluoride Compounds	N/A	1-20
Iron Pyrite	12068-85-8	0-20
Woven Fiberglass	N/A	0-15
Calcium Compounds	N/A	0-15
Sulfur	7704-34-9	0-15
Calcium Oxide	1305-78-8	1-10
Cryolite	15096-52-3	1-10

Cured Epoxy Resin	N/A	1-10
Calcium Carbonate	1317-65-3	0-5
Iron Oxide	1309-37-1	0-5
Graphite	7782-42-5	0-5
Aluminum Potassium Fluoride	14484-69-6	0.1-0.5
Potassium Fluoroborate	14075-53-7	0.1-0.5

The specific identity and/or exact percentage has been withheld as a trade secret.

4. FIRST-AID MEASURES

Ingestion: If grinding dust is swallowed, seek medical attention.
Inhalation: If overexposed to grinding dust, remove victim to fresh air and get medical attention.
Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.
Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

Most important symptoms/effects, acute and delayed: May cause mechanical eye and skin irritation. Inhalation of dust may cause nose, throat and upper respiratory tract irritation. Prolonged inhalation of high concentration of dust may cause adverse effects on the lungs. Prolonged overexposure may cause damage to the respiratory tract, bones and teeth by inhalation.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is not required.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding fire.

Specific hazards arising from the chemical: This product is not combustible, however, consideration must be given to the potential fire or explosion hazards from the base material being processed. Many materials create flammable or explosive dusts or turnings when machined or ground.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate respirator and protective clothing as needed to avoid eye contact and inhalation of dust.

Environmental precautions: Avoid release into the environmental. Report releases as required by local, state and federal authorities.

Methods and materials for containment and cleaning up: Pick up, sweep up or vacuum and place in a container for disposal. Minimize generation of dust.

7. HANDLING AND STORAGE

Precautions for safe handling: Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling and use, especially before eating, drinking or smoking. Refer to ANSI B7.1, Safety Requirements for the Use, Care and Protection of Abrasive Wheels for additional information. Consider potential exposure to components of the base materials or coatings being ground. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

Conditions for safe storage, including any incompatibilities: Store in accordance with ANSI B7.1. Protect abrasive wheels from damage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Silicon Carbide	3 mg/m3 TWA ACGIH TLV (respirable fraction) 10 mg/m3 TWA ACGIH TLV (inhalable fraction) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Cured Phenolic Resin	None Established
Nitrile Compounds	None Established
Fluoride Compounds	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Iron Pyrite	None Established
Woven Fiberglass	5 mg/m3 TWA ACGIH TLV (inhalable) 1 f/cc TWA ACGIH TLV (respirable)
Calcium Compounds	None Established
Sulfur	None Established
Calcium Oxide	2 mg/m3 TWA ACGIH TLV 5 mg/m3 TWA OSHA PEL
Cryolite (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Cured epoxy resin	None Established
Calcium Carbonate	15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Iron Oxide	5 mg/m3 TWA ACGIH TLV (respirable fraction) 10 mg/m3 TWA OSHA PEL (fume)
Graphite	2 mg/m3 TWA ACGIH TLV (respirable fraction) 15 mppcf mg/m3 TWA OSHA PEL
Aluminum Potassium Fluoride (as Al metal)	5 mg/m3 ACGIH TLV (respirable fraction) (as Al metal) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Aluminum Potassium Fluoride (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Potassium Fluoroborate (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL

Note: Consider also components of base materials and coatings being ground.

Appropriate engineering controls: Use local exhaust or general ventilation as required to minimize exposure to dust and maintain the concentration of contaminants below occupational exposure limits.

Individual protection measures, such as personal protective equipment:
Respiratory protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being ground in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin protection: Cloth or leather gloves recommended.
Eye protection: Safety goggles or face shield over safety glasses with side shields.

Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Black, brown or reddish colored solid wheel.
Odor: No Odor

Odor threshold: Not applicable	**pH:** Not applicable
Melting point/freezing point: Not applicable	**Boiling Point:** Not applicable
Flash point: Not applicable	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not combustible	
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:**
Relative density: Not applicable	**Solubility(ies):** Not soluble
Partition coefficient: n-octanol/water: Not applicable	**Auto-ignition temperature:** Not applicable
Decomposition temperature: Not applicable	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical stability: Stable.
Possibility of hazardous reactions: None known.
Conditions to avoid: None known.
Incompatible materials: None known.
Hazardous decomposition products: Dust from grinding could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being ground or coatings applied to the base material.

11. TOXICOLOGICAL INFORMATION

Routes of exposure:
Inhalation: Dust may cause respiratory irritation.
Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract.
Skin contact: None expected under normal use conditions. Rubbing product across the skin may cause mechanical irritation or abrasions.
Eye contact: Dust may cause mechanical irritation.

Chronic effects from short- and long-term exposure: Long-term overexposure to respirable dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Chronic effects may be aggravated by smoking. Prolonged overexposure to fluorides may cause a bone condition, fluorosis. Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being ground. Most of the dust generated during grinding is from the base material being ground and the potential hazard from this exposure must be evaluated.

Carcinogenicity: None of the components is listed as a carcinogen or potential carcinogen by OSHA, NTP or IARC.

Numerical measures of toxicity:
Silicon Carbide: Oral rat LD50 >2000 mg/kg, Dermal rat LD50 >2000 mg/kg
Iron Pyrite: No toxicity data available
Sulfur: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 >5.43 mg/L/4 hr, Dermal rat LD50 >200 mg/L
Calcium Oxide: Oral rat LD50 >7340 mg/kg

Cryolite: LD50 Oral rat >5,000 mg/kg
Calcium Carbonate: No toxicity data available
Iron Oxide: LD50 oral rat > 10000 mg/kg
Graphite: LD50 oral rat > 2000 mg/kg, LC50 inhalation rat > 2 mg/L
Aluminum Potassium fluoride: LD50 oral rat 2150 mg/kg, LC50 inhalation rat > 3.4 mg/L, LD50 dermal rabbit > 2000 mg/kg.
Potassium Fluoroborate: LD50 oral rat > 2000 mg/kg, LC50 inhalation rat > 5.3 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Silicon Carbide: No data available
Iron Pyrite: No data available
Sulfur: 96 hr LC50 Oncorhynchus mykiss > 5 µg/L (solubility limit of sulfur), 48 hr EC50 daphnia magna > 5 µg/L (solubility limit of sulfur)
Calcium oxide: 96 hr LC50 Cyprinus carpio >1070 mg/L
Cryolite: No data available
Calcium Carbonate: No data available
Iron Oxide: No data available
Graphite: Danio rerio LC50 > 100 mg/L/96rhr
Aluminum Potassium fluoride: Brachydanio rerio LC50 > 10 mg/L/96rhr
Potassium Fluoroborate: Leuciscus idus LC50: 760 mg/L/96rhr

Persistence and degradability: Biodegradation is not applicable to inorganic compounds.
Bioaccumulative potential: No data available
Mobility in soil: No data available.
Other adverse effects: No hazards to the environment are expected from this product. However, consideration must be given to potential environment effects of the base material being processed.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated	None	None	
TDG	None	Not Regulated	None	None	

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None identified.

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Not Applicable (manufactured articles)

SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting): None

California Proposition 65: WARNING! You create dust when you cut, sand, drill or grind materials such as wood, paint, cement, masonry or metal. This dust often contains chemicals known to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

NFPA Rating: Health = 1 Flammability = 0 Instability = 0
HMIS Rating: Health = 1* Flammability = 0 Physical Hazard =0
*Chronic health hazard

Date Previous Revision: 9/30/16
Date This Revision: 2/2/17
Revision Summary:
8/24/12: Section 3 Updated Composition, Section 8 Updated exposure limits, Section 11 Updated Acute toxicity values.
3/31/15: Changed all sections. Updated format to GHS.
9/30/16: Section 2 Classification, Hazard Phrases, Precautionary Phrases; Section 3 Composition; Section 8 Exposure guidelines; Section 11 Numerical measures of toxicity; Section 12 Ecotoxicity.
2/2/17: Section 2 Classification, Labeling Elements, Section 3 Composition, Section 4 Most important symptoms/effects, acute and delayed, Section 8 Exposure guidelines, Section 11 Carcinogenicity, Numerical measures of toxicity, Section 12 Ecotoxicity.

The preceding information is believed to be correct and current as of the date of preparation of this Material Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.

UNITED ABRASIVES SAIT

SAFETY DATA SHEET
Carbon Steel Wire Brushes
SDS #10

1. IDENTIFICATION

Product Identity / Trade Name: Carbon Steel Wire Brushes

Product Use: Abrasive materials used on metals, concrete, masonry and building materials.

Manufacturer: United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131 **Emergency Phone:** (860) 456-7131

Date of Preparation: June 15, 2018

2. HAZARD(S) IDENTIFICATION

Classification: Not classified as hazardous as defined by the GHS and OSHA 29 CFR 1910.1200.

Label Elements: None Required.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Iron	7439-89-6	95-99
Petroleum Distillates	64742-52-5 64741-86-2 64741-97-5	0-3.0
Drawing Lubricant	1592-23-0 822-16-2	0.0-2.0
Manganese	7439-96-5	0.25-1.65
Silicon	7440-21-3	0.0-1.6
Chromium	7440-47-3	0.0-1.5
Carbon	7440-44-0	0.01-1.1
Phosphate	4265-44-2	0.0-1.0
Borax	1303-96-4	0.0-1.0
Lime	1305-62-0	0.0-1.0
Vanadium	7440-62-2	0.0-0.35
Phosphorus	7723-14-0	0.0-0.04
Sulfur	7704-34-9	0.0-0.035
Lead	7439-92-1	0.0-0.005

The specific identity and/or exact percentage has been withheld as a trade secret.

4. FIRST-AID MEASURES

Ingestion: If dust is swallowed, seek medical attention.
Inhalation: If overexposed to dust, remove victim to fresh air and get medical attention.
Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.
Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

Most important symptoms/effects, acute and delayed: Use may generate dust that may cause eye and respiratory tract irritation. Dust may be harmful by inhalation and ingestion.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is generally not required.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding fire.

Specific hazards arising from the chemical: This product is not combustible, however, consideration must be given to the potential fire or explosion hazards from the base material being processed. Many materials create flammable or explosive dusts or turnings when brushed, machined or ground.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Minimize generation of dust. Use appropriate protective equipment to avoid inhalation and eye contact if dust is generated.

Environmental precautions: Report releases as required by local, state and federal authorities.

Methods and materials for containment and cleaning up: Pick up, sweep up or vacuum and place in a container for disposal. Minimize generation of dust.

7. HANDLING AND STORAGE

Precautions for safe handling: Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling and use, especially before eating, drinking or smoking. Consider potential exposure to components of the base materials or coatings being brushed, machined or ground. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

In normal power brushing operations, the material being removed will fly off the brush with considerable force along with the brush filaments, which break off due to fatigue. The potential for serious injury exists for both the operator and others in the work area (possibly 50 feet or more from the brush). To protect against this hazard, before rotating the brush, during rotation and until the rotation stops, all persons in the area must wear safety goggles or full face shields over safety glasses with side shields, along with appropriate protective clothing.

Conditions for safe storage, including any incompatibilities: Store in a dry location.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Iron (as iron oxide dust or fume)	10 mg/m3 TWA OSHA PEL (as fume) 5 mg/m3 TWA ACGIH TLV (respirable fraction)
Petroleum Distillates	5 mg/m3 TWA OSHA PEL (as oil mist)

	5 mg/m3 TWA ACGIH TLV (as mineral oil)
Drawing Lubricant	None Established
Manganese	5 mg/m3 Ceiling OSHA PEL 0.02 mg/m3 TWA (respirable), 0.1 mg/m3 TWA (inhalable) ACGIH TLV
Silicon	5 mg/m3 TWA (respirable fraction), 15 mg/m3 TWA (total dust) OSHA PEL
Chromium	0.5 mg/m3 TWA OSHA PEL 0.5 mg/m3 TWA ACGIH TLV
Carbon	5 mg/m3 TWA (respirable fraction), 15 mg/m3 TWA (total dust) OSHA PEL
Phosphate	None Established
Borax (s borate compounds)	2 mg/m3 TWA, 6 mg/m3 STEL ACGIH TLV (inhalable)
Lime (calcium hydroxide)	5 mg/m3 TWA (respirable fraction) OSHA PEL 15 mg/m3 TWA (total dust) OSHA PEL 5 mg/m3 TWA ACGIH TLV
Vanadium	None Established
Phosphorus	None Established
Sulfur	None Established
Lead (lead and inorganic compounds)	0.05 mg/m3 TWA OSHA PEL 0.05 mg/m3 TWA ACGIH TLV

Note: Consider also components from base materials and coatings.

Appropriate engineering controls: Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Individual protection measures, such as personal protective equipment:
Respiratory protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being ground in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin protection: Cloth or leather gloves recommended.
Eye protection: Safety goggles or face shield over safety glasses with side shields.
Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Gray-black wire brush.
Odor: No Odor

Odor threshold: Not applicable	**pH:** Not applicable
Melting point/freezing point: 2500-2650°F	**Boiling Point:** Not applicable
Flash point: Non-Combustible	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not applicable	
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:**
Relative density: Not applicable	**Solubility(ies):** Not soluble
Partition coefficient: n-octanol/water: Not	**Auto-ignition temperature:** Not applicable

applicable	
Decomposition temperature: Not applicable	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical stability: Stable.
Possibility of hazardous reactions: None known.
Conditions to avoid: Avoid creating or accumulating fines or dust.
Incompatible materials: Avoid acids.
Hazardous decomposition products: Dust from grinding or brushing could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being ground or brushed or coatings applied to the base material.

11. TOXICOLOGICAL INFORMATION

Routes of exposure:
Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract. May be harmful if swallowed.
Inhalation: Dust may cause respiratory irritation. May be harmful by inhalation. Prolonged inhalation may cause lung damage.
Eye: Dust may cause eye irritation. Dust particles or filings may cause abrasive injury to the eyes.
Skin: None expected under normal use conditions. Rubbing brush across the skin may cause mechanical irritation or abrasions.
Sensitization: Chromium can cause skin and/or respiratory sensitization.
Chronic: Long-term overexposure to dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Skin and/or respiratory sensitization may also occur. Chronic effects may be aggravated by smoking. Chronic exposure to manganese may cause brain or nervous system damage. Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being ground or brushed. Most of the dust generated during grinding and brushing is from the base material being processed and the potential hazard from this exposure must be evaluated.

Carcinogenicity: None of the components are listed as a carcinogen or potential carcinogen by OSHA, NTP or IARC.
Reproductive Toxicity: Not expected to cause reproductive toxicity.
Germ Cell Mutagenicity: Not expected to be a mutagen.

Numerical measures of toxicity:
Iron: Oral rat LD50 98.6 g/kg, Inhalation LC50 > 5 mg/kg
Manganese: Oral rat LD50 > 2000 mg/kg, Inhalation rat LC50 > 5.14 mg/L
Chromium: Oral rat LD50 > 5000 mg/kg, Inhalation rat LC50 > 2.08 mg/L, Dermal rabbit LD50 > 5000 mg/kg
Silicon: Oral rat LD50 > 5000 mg/kg, Inhalation rat LC50 > 5.41 mg/L, Dermal rabbit LD50 >5000 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity:
No ecological data is available for this product. This product contains ingredients that are toxic to aquatic organisms with long-lasting effects. Avoid environmental releases.

Persistence and degradability: Biodegradation is not applicable to inorganic compounds.
Bioaccumulative potential: No data available

Mobility in soil: No data available.
Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated	None	None	
TDG	None	Not Regulated	None	None	

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None identified.

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Classified as per Section 2 of this SDS.

16. OTHER INFORMATION

NFPA Rating: Health = 0 Flammability = 0 Instability = 0
HMIS Rating: Health = 0 Flammability = 0 Physical Hazard =0
*Chronic health hazard

Date Previous Revision: 9/21/15
Date This Revision: 6/15/18
Revision Summary:
6/15/18: Three year review. Change to Section 4, 15 & 16.
9/21/15: New formulation. All sections revised
3/31/15: Changed all sections. Updated format to GHS.
06/26/12: Periodic MSDS review: No changes.

The preceding information is believed to be correct and current as of the date of preparation of this Material Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.

UNITED ABRASIVES SAIT

SAFETY DATA SHEET
Carbide Blades
SDS #15

1. IDENTIFICATION

Product Identity / Trade Name: Carbide Blades

Product Use: Abrasive materials used on metals, concrete, masonry and building materials.

Manufacturer: United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131 **Emergency Phone:** (860) 456-7131

Date of Preparation: July 13, 2018

2. HAZARD(S) IDENTIFICATION

As sold, this product is a manufactured article. During use, dust generated has the following hazards:

Classification:

Physical	Health
Not Hazardous	Respiratory Sensitization Category 1 Skin Sensitization Category 1 Specific Target Organ Toxicity – Repeated Exposure Category 1 (Respiratory Tract) Carcinogen Category 1B Toxic to Reproduction Category 2

Label Elements:

Danger!

Hazard statement(s)
H317 May cause an allergic skin reaction
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to respiratory tract through prolonged or repeated exposure.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust or fumes.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing must not be allowed out of the workplace.
P284 In case of inadequate ventilation, wear respiratory protection.

P280 Wear protective gloves and eye protection.
P304+P340 IF INHALED: remove person to fresh air and keep comfortable for breathing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P302+P352 IF ON SKIN: Wash with plenty of water
P333+P313 If skin irritation or rash occurs: Get medical attention
P308+P313 IF exposed or concerned: Get medical attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P405 Store locked up.
P501 Dispose of contents in accordance with local, regional and national regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Tungsten carbide	12070-12-1	Balance
Cobalt	7440-48-4	0-30
Nickel	7440-02-0	0-30
Tantalum carbide	12070-06-3	0-20
Niobium carbide	12069-94-2	0-20
Titanium carbide	12070-08-5	0-20
Titanium nitride	25583-20-4	0-5
Vanadium carbide	12070-10-9	0-5
Chromium	7440-47-3	0-5

The specific identity and/or exact percentage has been withheld as a trade secret.

4. FIRST-AID MEASURES

Ingestion: If dust is swallowed, seek medical attention.
Inhalation: If overexposed to dust, remove victim to fresh air and get medical attention.
Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.
Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

Most important symptoms/effects, acute and delayed: Dust particles or filings may cause abrasive injury to the eyes. Nickel, chromium and cobalt can cause skin irritation and skin and/or respiratory sensitization. Prolonged inhalation of dust or fumes from this product may cause perforation of the nasal septum and lung damage. May cause cancer. May cause reproductive or developmental effects.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is required if allergic respiratory symptoms occur.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding fire.

Specific hazards arising from the chemical: Fine dusts created during grinding or processing may be spontaneously combustible or create a fire or dust explosion hazard. Many materials create flammable/explosive dusts or turnings when machined.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate protective clothing as needed to avoid eye and skin contact.

Environmental precautions: Avoid release into the environmental. Report releases as required by local, state and federal authorities.

Methods and materials for containment and cleaning up: Eliminate all sources of ignition. Pick up, sweep up or vacuum and place in a container for disposal. If dust is vacuumed, use explosion-proof equipment. Minimize generation of dust.

7. HANDLING AND STORAGE

Precautions for safe handling: Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling and use, especially before eating, drinking or smoking. Consider potential exposure to components of the base materials or coatings being machined. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

Dust generated during machining or processing may spontaneously combust or create a fire or dust explosion hazard. Use good housekeeping to prevent the accumulation of dusts around the workplace.

Conditions for safe storage, including any incompatibilities: Store in a dry location.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Tungsten carbide (as tungsten)	5 mg/m3 TWA, 10 mg/m3 STEL ACGIH TLV
Cobalt (as Co)	0.02 mg/m3 TWA ACGIH TLV 0.1 mg/m3 TWA OSHA PEL (metal dust and fume)
Nickel	1 mg/m3 TWA OSHA PEL (elemental, insoluble compounds) 1.5 mg/m3 TWA ACGIH TLV (inhalable) (elemental) 0.2 mg/m3 TWA ACGIH TLV (inhalable) (insoluble compounds)
Tantalum carbide (as tantalum)	5 mg/m3 TWA OSHA PEL
Niobium carbide	None Established
Titanium carbide	None Established
Titanium nitride	None Established
Vanadium carbide	None Established
Chromium	0.5 mg/m3 TWA OSHA PEL (chromium and inorganic componds) 0.5 mg/m3 TWA ACGIH TLV (chromium and inorganic compounds)

Note: Consider also components of base materials and coatings being machined.

Appropriate engineering controls: Use local exhaust or general ventilation as required to minimize exposure to dust and maintain the concentration of contaminants below occupational applicable limits.

Individual protection measures, such as personal protective equipment:

Respiratory protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being brushed or machined in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin protection: Avoid skin contact with dust. Follow facility requirements regarding glove use to avoid safety hazard.
Eye protection: Safety goggles or safety glasses with side shields.
Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Gun-metal-gray solid.
Odor: No Odor

Odor threshold: Not applicable	**pH:** Not applicable
Melting point/freezing point: Not applicable	**Boiling Point:** Not applicable
Flash point: Non-Combustible	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not applicable	
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:**
Relative density: 11-15.5	**Solubility(ies):** Not soluble
Partition coefficient: n-octanol/water: Not applicable	**Auto-ignition temperature:** Not applicable
Decomposition temperature: Not applicable	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive
Chemical stability: Stable
Possibility of hazardous reactions: None known.
Conditions to avoid: None known
Incompatible materials: None known
Hazardous decomposition products: Dust from machining could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being machined or coatings applied to the base material.

11. TOXICOLOGICAL INFORMATION

Routes of exposure:
Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract.
Inhalation: Dust may cause respiratory irritation.
Eye: Dust may cause eye irritation. Dust particles or filings may cause abrasive injury to the eyes.
Skin: Rubbing brush across the skin may cause mechanical irritation or abrasions. Nickel exposure can cause an allergic dermatitis called "nickel itch".
Sensitization: Nickel and cobalt can cause skin and/or respiratory sensitization.
Chronic: Long-term overexposure to respirable dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Skin and/or respiratory sensitization may also occur. Chronic effects may be aggravated by smoking. Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the

material or paint/coatings being sanded. Most of the dust generated during sanding is from the base material being sanded and the potential hazard from this exposure must be evaluated.
Carcinogenicity: Nickel and cobalt are classified as group 2B carcinogens by IARC. Nickel is listed by NTP as reasonably anticipated to be a carcinogen. None of the other components are listed as carcinogens by IARC, NTP, ACGIH, or OSHA.
Reproductive Toxicity: Cobalt has been shown to cause reproductive toxicity in laboratory animals. In a 12 week study, male rats were administered 6.4, 11.6 or 23 mg/kg in drinking water. At all doses, decreased implantations, increased resorptions, decreased viable fetuses and decrease sperm counts were observed. The two higher doses showed decreased relative testes weight ad testes necrosis and degenerations.

Numerical measures of toxicity: This product and its components are not acutely toxic. The only acute toxicity data available for the components are listed below.
Tungsten Carbide: LD50 oral rat > 2000 mg/kg, LC50 inhalation rat > 5.3 mg/L, LD50 dermal rat > 2000 mg/kg
Cobalt: LD50 oral rat: 550 mg/kg, LC50 inhalation rat <= 0.05 mg/L (analytical), LD50 dermal rat > 2000 mg/kg
Nickel: LD50 oral rat > 9000 mg/kg
Tantalum Carbide: No data available
Niobium Carbide: No data available
Titanium Carbide: LD50 oral mouse > 5000 mg/kg
Titanium Nitride: No data available
Vanadium Carbide: LD50 oral rat > 2000 mg/kg, LC50 inhalation rat > 5.05 mg/L
Chromium: LD50 oral rat > 5000 mg/kg, LC50 inhalation rat > 5.41 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Tungsten Carbide: Danio rerio LC50 > 1000 mg/L/96hr
Cobalt: Danio rerio LC50 > 181 mg/L/96hr
Nickel: Oncorhynchus mykiss LC50: 15.3 mg/L/96hr
Titanium Carbide: Oncorhynchus mykiss LC50 > 100 mg/L (ultrafine TiO2)
Vanadium Carbide: Limanda limanda LC50: 27.8 mg/L/96hr

Persistence and degradability: Biodegradation is not applicable to inorganic compounds.
Bioaccumulative potential: No data available
Mobility in soil: No data available.
Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated	None	None	None
TDG	None	Not Regulated	None	None	None

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None identified.

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Classified as per Section 2 of this SDS.

SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting):

Nickel	7440-02-0	0-30
Cobalt	7440-48-4	0-30
Chromium	7440-47-3	0-10

16. OTHER INFORMATION

NFPA Rating: Health = 1 Flammability = 0 Instability = 0
HMIS Rating: Health = 1* Flammability = 0 Physical Hazard =0
*Chronic health hazard

Date Previous Revision: 03/31/15
Date This Revision: 07/13/18
Revision Summary:
07/13/18: Three year review. Change to Section 8, 15 & 16.
3/31/15: Changed all sections. Updated format to GHS.
12/14/12: Section 8 Exposure Limits; Comprehensive Review.

The preceding information is believed to be correct and current as of the date of preparation of this Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.