NORTON COMPANY

1 NEW BOND STREET **BOX NUMBER 15008** WORCESTER, MA 01615-0008 (508) 795-5000

February 1, 1989

Dear Valued Customer:

In compliance with the Federal Hazard Communications Standard 29.CFR.1910.1200 and Section 313 of the Superfund Amendments and Reauthorization Act of 1986 Title III, we enclose revised Material Safety Data Sheets for grinding wheels. The basic grinding wheel categories include:

> Vitrified Bonded Abrasive Products Rubber or Shellac Bonded Abrasive Products Resinoid Bonded Abrasive Products Diamond or Cubic Boron Nitride Abrasive Products

Section 313 of the Superfund Amendments and Reauthorization Act of 1986 Title III (SARA) requires suppliers of materials listed in Section 313 to notify customers and distributors of these materials and mixtures containing them. Aluminum oxide is currently listed as a Section 313 chemical. Norton Company, the Grinding Wheel Institute, the Abrasive Grain Association and other organizations are currently petitioning the EPA to delist aluminum oxide as it does not meet the criteria of a Section 313 material. It is hoped this material will be delisted in 1989.

The MSDS sheets contain complete generic information required by the Federal regulations. This does not mean all materials listed are present in all abrasives or bonds. Information will be provided for a designated specification upon request.

The MSDS sheets provided should be forwarded to the individual responsible for plant safety. Do not detach this from your MSDS packet.

> Thomas & Keeleards Thomas Z. Richards

Manager, Product Safety Bonded Abrasives

eml





1 0 Reactivity Rating

HAZARD RATING
Please rate consistent with NFPA Code

0.1mg/m³

MATERIAL SAFETY DATA SHEET

SECTION I NAME AND PRODUCT CONTACT MANUFACTURER'S NAME THOMAS Z. RICHARDS NORTON COMPANY EMERGENCY TELEPHONE NO. ADDRESS (STREET, CITY, STATE AND ZIP CODE) 508-795-2690 1 NEW BOND STREET, WORCESTER, MA 01615-0008 Kmarayans APPROVED BY TRADE NAME, COMMON NAME OR SPECIFICATION RESINOID BONDED GRINDING WHEELS CHEMICAL FAMILY OR PRODUCT TYPE **ANY GRADE** SECTION II COMPOSITION PER 29CFR 1910.1200 (G) (4)

CHEMICAL NAME	MAX %	COMMON NAME	REG* (Y/N)	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	CARCI OGEN (Y/N)
Alpha-Alumina****	90	Alundum, Seeded Gel	Y	1344-28-1	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Silicon Carbide	90	Crystolon	Y	409-21-2	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Zirconia Alumina	90	NZ, ZF, ZS	Υ	**NAIF	5mg/rn³ (as Zirconium)	5mg/m³ (as Zirconium)	N
The grinding wheel may be compris	ed of 1 or more of	of the above abrasives. The	chemica	ls listed below may	be a part of the bond	system.	
Fluorides (as F)	3	***N/A	Υ	*"*N/A	2,5mg/m³	2.5mg/m³	N
Calcium Oxide	3	Lime	Υ	1305-78-8	5mg/m³	2mg/m³	N
Glass, Fibrous or Dust	10	Fiberglass	Y	**NAIF	**NAIF	10mg/m³	N
							1

*Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusetts General Law Chapter 111F, Right To Know Regulations.

Crystalline Silica

14808-60-7

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT **NAIF	MELTING POINT "NAIF	SPECIFIC GRAVITY 2-4
VAPOR PRESSURE "NAIF	PERCENT VOLATILE BY VOL "NAIF	VAPOR DENSITY "NAIF
EVAPORATION RATE "NAIF	SOLUBILITY IN WATER Slight	SOLUBILITY IN ALCOHOL "NAIF
SOLUBILITY IN OTHER SOLVENT "NAIF	APPEARANCE AND ODOR SOLID PRODUCT: MAY GI	VE OFF ODOR IN USE.

SECTION IV SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE - NONE. OTHER PRECAUTIONS:

**NAIF

	SECTION V	CORROSIVITY AND REA	ACTIVITY DA	ATA	<u> </u>
STABILITY UNSTABLE	X STABLE	POLYMERIZATION	MAY OCCUR	X WILL NOT OCCUP	
INCOMPATABILITY (MATERIALS TO	AVOID)	,			1 73
**NAIF		· · · · · · · · · · · · · · · · · · ·			
DECOMPOSITION PRODUCTS					• .
In use, dust and decomposing of grinding wheel components. Co	organic fumes are genera polants may produce other	ated. In most cases, the material remer er decomposition products.	oved from the work	piece will be significant	ly greater than the

CONDITIONS TO BE AVOIDED

Silicon Dioxide

**NAIF

"NAIF = NO APPLICABLE INFORMATION FOUND

""N/A = NOT APPLICABLE

****SUBJECT TO EPA SECTION 313 REPORTING UNDER SARA 40CFR PART 372
A PETITION HAS BEEN SUBMITED TO THE EPA TO DELIST IT.

15mg/m³

S	ECTION VI HEALTH, FIRST AID AND ME	DICAL DATA
PRIMARY RÓUTE(S) OF ENTRY	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	FIRST AID AND MEDICAL INFORMATION
INHALATION (During Grinding)	ACUTE: COUGHING, SHORTNESS OF BREATH. CHRONIC: MAY AFFECT BREATHING CAPACITY.	REMOVE TO FRESH AIR. ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ASSISTANCE.
INGESTION (During Grinding)	NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.	OBTAIN MEDICAL ASSISTANCE.
SKIN (During CONTACT & Grinding) ABSORPTION	SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.	WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.
EYE (During Grinding)	DUSTS MAY IRRITATE EYES.	WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, IF NEEDED.
OTHER POTENTIAL HEALTH RISKS (During Grinding)	GRINDING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING AND MAY AGGRAVATE PREEXISTING RESPIRATORY CON- DITIONS.	OBTAIN MEDICAL ASSISTANCE. THERE IS LIMITED INFORMATION THAT CRYSTALLINE SILICA IS A CARCINOGEN.

NORMAL STORAGE AND HANDLING SEE ANSI STANDARD B7.1.

NORMAL USE

HANDLE WITH ADEQUATE VENTILATION. SEE OSHA 29CFR 1910.94 (VENTILATION) and 29CFR1910.1000 (AIR CONTAMINANTS)

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS.

NORMAL CLEANUP PROCEDURES.

WASTE DISPOSAL METHOD

STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS.

PRODUCTS WITH LISTED FLOURIDES MAY HAVE SLIGHTLY SOLUBLE FLOURIDE SWARF.

	SEC	TION VIII PERSONAL PROTECTION INFORMATION	
RESPIRATORY	PROTECTION (SF	ECIFY TYPE) AS NEEDED. FOR APPROVED DUST RESPIRATORS SE	E OSHA 29CFR 1910.134.
VENTILATION	LOCAL	RECOMMENDED	
	MECHANICAL (GENERAL)	RECOMMENDED	
	OTHER	**NAIF	
S mark as			
PROTECTIVE G	SLOVES	AS DESIRED BY USER	
EYE PROTECT	ION	RECOMMENDED SEE OSHA 29CFR 1910.133	
OTHER EQUIPM	MENT	AS NEEDED HEARING PROTECTION SEE OSHA 29CFR 1910.95	(HEARING PROTECTION)
MEASURES TO WITH THIS MAT		G REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THA	T HAS BEEN IN CONTACT
	*	SEE SECTION VII & VIII	

	SE	CTION IX FIRE A	ND EXPL	OSION HAZARD DA	\TA	
FLASH POINT	**NAIF	METHOD USED	***N/A	FLAMMABLE LIMITS	LEL N/A	UEL ***N/A
EXTINGUISHING	MEDIA	USE WAT	TER			
SPECIAL FIRE F	IGHTING PROCE	DURES NONE				
EXPLOSION POT	ΓΕΝΤΙΑL	**NAIF				

FOR COMPANY USE



MATERIAL SAFETY DATA SHEET



HAZARD RATING Please rate consistent with NFPA Code

SECTION I NAME AND PRODUCT MANUFACTURER'S NAME CONTACT THOMAS Z. RICHARDS NORTON COMPANY EMERGENCY TELEPHONE NO. ADDRESS (STREET, CITY, STATE AND ZIP CODE) 508-795-2690 1 NEW BOND STREET, WORCESTER, MA 01615-0008 APPROVED BY Language TRADE NAME, COMMON NAME OR SPECIFICATION RUBBER & SHELLAC BONDED GRINDING WHEELS CHEMICAL FAMILY OR PRODUCT TYPE

SECTION II COMPOSITION PER 29CFR 1910.1200 (G) (4)

ANY GRADE

CHEMICAL NAME	MAX %	COMMON NAME	REG* (Y/N)	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	CARCI OGEN (Y/N)
Amorphous Silica	2	Silica Gel	Υ	63231-67-4	20 mppcf	10mg/m³	N
Sulfur	8	Sulfur	Υ	7704-34-9	**NAIF	**NAIF	N
Fluorides (as F)	2	***N/A	Y	***N/A	2.5mg/m³	2.5mg/m³	N
Carbon Black	11	***N/A	Υ	1333-86-4	3.5mg/m³	3.5mg/m³	N
Dibutyl Phthalate****	1	***N/A	Υ	84-74-2	5mg/m³	5mg/m³	N
Thiram	-1	Methyl Tuads	Υ	137-26-8	5mg/m³	5mg/m³	N
The chemicals listed above may	be a part of	the bond system. The grind	ing wheel	may be comprised	of one or more of the	e following abrasive	s. ¹⁹
Alpha Alumina****	90	Alundum	Υ	1344-28-1	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Silicon Carbide	90	Crystolon	Y	409-21-1	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Zirconia Alumina	90	NZ, ZS, ZF	Y	**NAIF	5mg/m³ (as Zirconium)	5mg/m³ (as Zirconium)	N
		<u> </u>	1			(200 200 200 200 700 700 700 700 700 700	-

*Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusetts General Law Chapter 111F, Right To Know Regulations. SECTION III PHYSICAL AND CHEMICAL DATA

		6 33.
BOILING POINT **NAIF	MELTING POINT "NAIF	SPECIFIC GRAVITY 2-4
VAPOR PRESSURE "NAIF	PERCENT VOLATILE BY VOL "NAIF	VAPOR DENSITY "NAIF
EVAPORATION RATE "NAIF	SOLUBILITY IN WATER Slight	SOLUBILITY IN ALCOHOL "NAIF
SOLUBILITY IN OTHER SOLVENT "NAIF	APPEARANCE AND ODOR	
SOLUBILIT IN OTHER SOCIETY WAII	SOLID PRODUCT: MAY	GIVE OFF ODOR IN USE.

SECTION IV SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE - NONE. OTHER PRECAUTIONS: **NAIF

STABILITY	UNSTABLE	STABLE	POLYMERIZATION	MAY OCCUR	WILL NOT OCCUR	i ng
INCOMPATAB	ILITY (MATERIALS TO	AVOID)			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	4.5
	**NAIF					
	ION PRODUCTS					- 4-
in use, dust a	and decomposing res	sin system fumes are ger	nerated. In most cases, the materia	I removed from the wo	orkpiece will be significantly greater	r than

the grinding wheel components. Coolants may produce other decomposition products.

CONDITIONS TO BE AVOIDED

"NAIF

"NAIF - NO APPLICABLE INFORMATION FOUND

""N/A = NOT APPLICABLE

****SUBJECT TO EPA SECTION 313 REPORTING 40CFR PART 372

S	ECTION VI HEALTH, FIRST AID AND ME	DICAL DATA
PRIMARY ROUTE(S) OF ENTRY	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	FIRST AID AND MEDICAL INFORMATION
INHALATION (During Grinding)	ACUTE: COUGHING, SHORTNESS OF BREATH. CHRONIC: MAY AFFECT BREATHING CAPACITY.	REMOVE TO FRESH AIR. ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ASSISTANCE.
MINGESTION (During Grinding)	NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.	OBTAIN MEDICAL ASSISTANCE.
SKIN (During CONTACT & Grinding) ABSORPTION	SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.	WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.
EYE (During Grinding)	DUSTS MAY IRRITATE EYES.	WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, IF NEEDED.
OTHER POTENTIAL HEALTH RISKS (During Grinding)	GRINDING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING AND MAY AGGRAVATE PREEXISTING RESPIRATORY CON- DITIONS.	OBTAIN MEDICAL ASSISTANCE. THERE IS LIMITED INFORMATION THAT CRYSTALLINE SILICA IS A CARCINOGEN.

NORMAL STORAGE AND HANDLING SEE ANSI STANDARD B7.1.

NORMAL USE

165H. . . .

HANDLE WITH ADEQUATE VENTILATION. SEE OSHA 29CFR 1910.94 (VENTILATION) and 29CFR1910.1000 (AIR CONTAMINANTS)

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS.

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NORMAL CLEANUP PROCEDURES.

WASTE DISPOSAL METHOD

STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS.
PRODUCTS WITH LISTED FLOURIDES MAY HAVE SLIGHTLY SOLUBLE FLOURIDE SWARF.

26	SEC	TION VIII PERSONAL PROTECTION INFORMATION
RESPIRATORY	PROTECTION (SI	PECIFY TYPE) AS NEEDED. FOR APPROVED DUST RESPIRATORS SEE OSHA 29CFR 1910.134.
VENTILATION	LOCAL	RECOMMENDED
Mg 1 Administration	MECHANICAL (GENERAL)	RECOMMENDED
and the second	OTHER	**NAIF
Magazzania (m. 1945)		
PROTECTIVE	LOVES	AS DESIRED BY USER
EYE PROTECT	ION	RECOMMENDED SEE OSHA 29CFR 1910.133
OTHER EQUIPM	MENT	AS NEEDED HEARING PROTECTION SEE OSHA 29CFR 1910.95 (HEARING PROTECTION)
MEASURES TO WITH THIS MAT		IG REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT
	•	SEE SECTION VII & VIII

	SE	CTION IX FIR	E AND EXP	LOSION HAZARD DA	ATA		
FLASH POINT	**NAIF	METHOD US	ED ***N/A	FLAMMABLE LIMITS	LEL N/A	UEL ***N/A	
EXTINGUISHING	MED:A	USE	WATER				
SPECIAL FIRE FI	GHT G PROCE	DURES NON	E				
EXPLOSION POT	ENT \L	**NA	IF				

FOR COMPANY USE



000567

Health Rating Reactivity Rating

HAZARD RATING
Pleas rate consistent with NFPA Code

MATERIAL SAFETY DATA SHEET

		WATERIAL SAFET				Pleas rate	te consistent with Ni	-PA COGe
A COLOR DE LA		SECTION I NAME	AND P	RODUCT	····			
MANUFACTURER'S NAME					J	CONTACT	A T DIOU	
NORTON COMPANY		 			J		AS Z. RICH	
ADDRESS (STREET, CITY, STATE AND ZIP COD	-				•		Y TELEPHONE NO	3.
1 NEW BOND STREET, W		<u>:STER, MA 01615</u> -	-0008			508-795		
TRADE NAME, COMMON NAME OR SPECIFICAT				:		APPROVED	5 held	Porc
VITRIFIED BONDED - ABR	RASIV	/E PRODUCTS				DATE 12	-16-88	
CHEMICAL FAMILY OR PRODUCT TYPE		GRADE						
SECTION	II NC	COMPOSITION PE	-R 29C	FR 1910.17	200 (G)	(4)		
CHEMICAL NAME	MAX %	COMMON NAME	REG* (Y/N)	CAS #	PERM	SHA MISSIVE URE LIMIT	ACGIH TLV	CARCII OGEN (Y/N)
Alpha-Alumina****	96	Alundum, Seeded Gel	Y	1344-28-1	(Tota	ng/m³ il Dust)	t0mg/m³ (Total Dust)	N
Silicon Carbide	96	Crystolon	Y	409-21-2		ng/m³ il Dust)	t0mg/m³ (Total Dust)	N
Sulfur Treatment	41	No. 22 Treat	. Y	7704-34-9	**•	VAIF	**NAIF	N
Note: Wheel Treatment ranges from 21 to 4	41% con	centration based on wheel w	reight.		**************************************			
Know Regulations.			·					
· · · · · · · · · · · · · · · · · · ·		ON III PHYSICAL A	ND Cł					and state of the s
BOILING POINT **NAIF		LTING POINT "NAIF			SPECIFIC GI			
VAPOR PRESSURE **NAIF			NAIF		VAPOR DEN			- · · · · · · · · · · ·
EVAPORATION RATE **NAIF SOLUBILITY IN OTHER SOLVENT **NAIF	SOL			CE AND ODOR		IN ALCOHOL	. **NAIF	
	SF(CTION IV SPECIAI		CAUTIONS		IN USE.		
PRECAUTIONS TO BE TAKEN IN HANDLING AND			in W I Liber	<u>UNUTION</u>				
OTHER PRECAUTIONS: **NAIF								
SECT	rion '	V CORROSIVITY	AND R	EACTIVITY	DATA			
STABILITY UNSTABLE X STAB	1E	POLYMERIZA	ATION	MAY OCC	CUR X	WILL NOT OC	CUR	
INCOMPATABILITY (MATERIALS TO AVOID) Avoid acids of all types with a Pi	 u 4 (·						HARS
DECOMPOSITION PRODUCTS	1 4 ~ 4.4							
in use, dusts are generated. In most cases, ti	he sirbor	me material removed from the	worknier	e will be clanifican	ith amester f	han the aring	diag whool comes	ınonte

CONDITIONS TO BE AVOIDED

**NAIF

S	SECTION VI HEALTH, FIRST AID AND MEDICAL DATA						
PRIMARY ROUTE(S)	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	FIRST AID AND MEDICAL INFORMATION					
INHALATION (During Grinding)	ACUTE: COUGHING, SHORTNESS OF BREATH. CHRONIC: MAY AFFECT BREATHING CAPACITY.	REMOVE TO FRESH AIR. ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ASSISTANCE.					
INGESTION (During Grinding)	NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.	OBTAIN MEDICAL ASSISTANCE.					
SKIN (During CONTACT & Grinding) ABSORPTION	SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.	WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.					
EYE (During Grinding)	DUSTS MAY IRRITATE EYES.	WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, IF NEEDED.					
OTHER POTENTIAL HEALTH RISKS (During Grinding)	GRINDING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING AND MAY AGGRAVATE PREEXISTING RESPIRATORY CONDITIONS.	OBTAIN MEDICAL ASSISTANCE. THERE IS LIMITED INFORMATION THAT CRYSTALLINE SILICA IS A CARCINOGEN.					

NORMAL STORAGE AND HANDLING

SEE ANSI STANDARD B7.1.

NORMAL USE

HANDLE WITH ADEQUATE VENTILATION. SEE OSHA 29CFR 1910.94 (VENTILATION) and 29CFR1910.1000 (AIR CONTAMINANTS)

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS.

NORMAL CLEANUP PROCEDURES.

WASTE DISPOSAL METHOD

STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS.

AL A.	SEC	TION VIII PERSONAL PROTECTION INFORMATION
RESPIRATORY	PROTECTION (SE	PECIFY TYPE) AS NEEDED. FOR APPROVED DUST RESPIRATORS SEE OSHA 29CFR 1910.134.
VENTILATION LOCAL		RECOMMENDED
	MECHANICAL (GENERAL)	RECOMMENDED
	OTHER	**NAIF
en T		
PROTECTIVE C	LOVES	AS DESIRED BY USER
EYE PROTECTION		RECOMMENDED SEE OSHA 29CFR 1910.133
OTHER EQUIPM	MENT	AS NEEDED HEARING PROTECTION SEE OSHA 29CFR 1910.95 (HEARING PROTECTION)
MEASURES TO WITH THIS MAT		IG REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT
	•	SEE SECTION VII & VIII

SECTION IX FIRE AND EXPLOSION HAZARD DATA					
FLASH POINT **NAIF	METHOD USED ***N/A	FLAMMABLE LIMITS LEL N/A UEL ***N/A			
EXTINGUISHING MEDIA	USE WATER				
SPECIAL FIRE FIGHTING PR	OCEDURES NONE				
EXPLOSION POTENTIAL	**NAIF				

FOR COMPANY USE



000568

Rating Reactivity Rating Rating

HAZARD RATING Please rate consistent with NFPA Code

MATERIAL SAFETY DATA SHEET

SECTION I NAME AND PRODUCT

MANUFACTURER'S NAME	CONTACT
NORTON COMPANY	THOMAS Z. RICHARDS
ADDRESS (STREET, CITY, STATE AND ZIP CODE)	EMERGENCY TELEPHONE NO.
1 NEW BOND STREET, WORCESTER, MA 01615-0008	508-795-2690
TRADE NAME, COMMON NAME OR SPECIFICATION	APPROVED BY
DIAMOND OR CUBIC BORON NITRIDE GRINDING WHEELS	DATE //23/89
CHEMICAL FAMILY OR PRODUCT TYPE	
ANY GRADE	

SECTION II COMPOSITION PER 29CFR 1910.1200 (G) (4)

CHEMICAL NAME	MAX %	COMMON NAME	REG* (Y/N)	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	CARCIN OGEN (Y/N)
Silver ****	85	Silver	γ	7440-22-4	.01mg/m³	.1mg/m³	N
Cobalt ****	60	Cobalt	Υ	7440-48-4	.1mg/m³	.1mg/m³	N
Copper ****	85	Copper	Υ	7440-50-8	1mg/m ^s	1mg/m³	N
Tín	25	Tin	Υ	7440-31-5	2mg/m³	2mg/m³	N
Graphite	5	Graphite	Y	7782-42-5	15MPPCF	5mg/m³ (Respirable Dust)	N
Silicon Carbide **	73	Crystolon	Y	409-21-2	15mg/m³	10mg/m³	N
Alpha-Alumina ****	81	Alundum	Y	1344-28-1	(Total Dust)	(Total Dust)	
Nickel ****	82	Nickel	Υ	7440-02-0	1mg/m³	1mg/m³	YΦ
Phosphorus ****	1	Phosphorus	Y	7723-14-0	0.1mg/m³	0.1mg/m³	N
Manganese	3	Manganese	Υ	7439-96-5	5mg/m³	5mg/m³	N
Molybdenum	1	Molybdenum	Υ	7439-98-7	15mg/m³	10mg/m³	N
Silicon Powder	5	Silicon Powder	Υ	7440-21-3	**NAIF	10mg/m³	N
Silicon Dioxide	<1	Crystalline Silica	Y	14808-60-7	15mg/m³	0.1mg/m³	' Y'

^{*}Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusetts General Law Chapter 111F, Right To Know Regulations. *Listed by NTP as a Carcinogen. Other studies are not in agreement with IRAC that nickel is a probable human carcinogen.

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT **NAIF	MELTING POINT >220°C	SPECIFIC GRAVITY 2-4
VAPOR PRESSURE **NAIF	PERCENT VOLATILE BY VOL. "NAIF	VAPOR DENSITY "NAIF
EVAPORATION RATE **NAIF	SOLUBILITY IN WATER Slight	SOLUBILITY IN ALCOHOL "NAIF
SOLUBILITY IN OTHER SOLVENT "NAIF	APPEARANCE AND ODOR SOLID PRODUCT: MAY GI	VE OFF ODOR IN USE.

SECTION IV SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE - OTHER PRECAUTIONS:	- NONE.		
**NAIF			

		SECTION V C	ORROSIVITY AND R	EACHVITEDA	HIA	
STABILITY	UNSTABLE	X STABLE	POLYMERIZATION	MAY OCCUR	X WILL NOT	OCCUR
INCOMPATA	BILITY (MATERIALS TO	AVOID)				
	**NAIF					•
DECOMPOSI	TION PRODUCTS					
			erated. In most cases, the mailuce other decomposition produce		he workpiece w	rill be signifigreater than
CONDITIONS	TO BE AVOIDED **NAIF			****		in the profit of the second of
NAIF - NO AP	PLICABLE INFORMAT	ON FOUND *** N	/A = NOT APPLICABLE	**** SUBJECT TO E	PA SECTION 313	REPORTING 400CFR PART

数于1.50mm		
S S	ECTION VI HEALTH, FIRST AID AND ME	DICAL DATA
PRIMARY ROUTE(S) OF ENTRY	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	FIRST AID AND MEDICAL INFORMATION
NHALATION (During Grinding)	ACUTE: COUGHING, SHORTNESS OF BREATH. CHRONIC: MAY AFFECT BREATHING CAPACITY.	REMOVE TO FRESH AIR. ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ASSISTANCE.
INGESTION (During Grinding)	NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.	OBTAIN MEDICAL ASSISTANCE.
SKIN (During CONTACT & Grinding) ABSORPTION	SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.	WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.
EYE (During Grinding)	DUSTS MAY IRRITATE EYES.	WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSIS- TANCE, IF NEEDED.
OTHER POTENTIAL HEALTH RISKS (During Grinding)	GRINDING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING AND MAY AGGRAVATE PREEXISTING RESPIRATORY CON- DITIONS.	OBTAIN MEDICAL ASSISTANCE. THERE IS LIMITED INFORMATION THAT CRYSTALLINE SILICA IS A CARCINOGEN.

NORMAL STORAGE AND HANDLING SEE ANSI STANDARD B7.1.

NORMAL USE

HANDLE WITH ADEQUATE VENTILATION. SEE OSHA 29CFR 1910.94 (VENTILATION) and 29CFR1910.1000 (AIR CONTAMINANTS)

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS.

NORMAL CLEANUP PROCEDURES.

WASTE DISPOSAL METHOD

STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS.

The state of the s	SEC	TION VIII PERSONAL PROTECTION INFORMATION
RESPIRATORY	PROTECTION (SI	PECIFY TYPE) AS NEEDED. FOR APPROVED DUST RESPIRATORS SEE OSHA 29CFR 1910.134.
VENTILATION	LOCAL	RECOMMENDED
	MECHANICAL (GENERAL)	RECOMMENDED
gant or a t	OTHER	**NAIF
PROTECTIVE G	LOVES	AS DESIRED BY USER
EYE PROTECT	ION	RECOMMENDED SEE OSHA 29CFR 1910.133
OTHER EQUIPM	MENT	AS NEEDED HEARING PROTECTION SEE OSHA 29CFR 1910.95 (HEARING PROTECTION)
MEASURES TO WITH THIS MAT		IG REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT
		SEE SECTION VII & VIII

SECTION IX FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT	**NAIF	METHOD USED ***N/A	FLAMMABLE LIMITS LEL N/A UEL ***N/A
EXTINGUISHING MEDIA		USE WATER	
SPECIAL FIRE FI	GHTING PROCED	URES NONE	
EXPLOSION POTENT \L		**NAIF	

FOR COMPANY USE