Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **HiTemp Filler Compound**

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

Relevant identified use(s) • Electrical contact aid

1.3 Details of the supplier of the safety data sheet

Manufacturer • AFL Telecommunications

170 Ridgeview Circle
Duncan, SC 29334
United States

Telephone (General) • 1-864-433-0333

1.4 Emergency telephone number

Manufacturer • 1-800-866-3941 Ext. 5577 - USA

Manufacturer • 1-864-433-5577

Section 2: Hazards Identification

EU/EEC

According to EU Directive 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Skin Irritation 2 - H315
Skin Sensitization 1 - H317
Eye Irritation 2 - H319
Carcinogenicity 2 - H351
Specific Target Organ Toxicity Repeated Exposure 2 - H373

DSD/DPD • Harmful (Xn)
Irritant (Xi)
Carcinogenic Substances - Category 3
R36/37/38, R40, R43, R48/20

2.2 Label Elements

CLP

WARNING

Hazard statements
- H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H351 - Suspected of causing cancer.
H373 - May cause damage to organs through prolonged or repeated exposure.

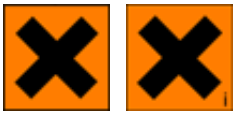
Precautionary statements

Prevention
- P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe fume/vapours.
P264 - Wash thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P281 - Use personal protective equipment as required.

Response
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P362 - Take off contaminated clothing and wash before reuse.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment, see supplemental first aid information.

Storage/Disposal
- P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD



Risk phrases
- R36/37/38 - Irritating to eyes, respiratory system and skin.
R40 - Limited evidence of a carcinogenic effect.
R43 - May cause sensitisation by skin contact.
R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Safety phrases
- S24 - Avoid contact with skin.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53 - Avoid exposure - obtain special instructions before use.

2.3 Other Hazards

CLP
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD
- According to European Directive 1999/45/EC this preparation is considered dangerous.

United States (US)

According to OSHA GHS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Skin Irritation 2 - H315
Skin Sensitization 1A - H317
Eye Irritation 2 - H319
Carcinogenicity 2 - H351
Specific Target Organ Toxicity Repeated Exposure 2 - H373

2.2 Label elements

OSHA HCS 2012

WARNING

Hazard statements

- Causes skin irritation - H315
  May cause an allergic skin reaction - H317
  Causes serious eye irritation - H319
  Suspected of causing cancer. - H351
  May cause damage to organs -Lungs through prolonged or repeated exposure via Inhalation - H373

Precautionary statements

Prevention

- Use personal protective equipment as required. - P281
  Obtain special instructions before use. - P201
  Do not handle until all safety precautions have been read and understood. - P202
  Do not breathe fume/vapours. - P260
  Wash thoroughly after handling. - P264
  Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response

- IF ON SKIN: Wash with plenty of soap and water. - P302+P352
  Take off contaminated clothing and wash before reuse. - P362
  If skin irritation or rash occurs: Get medical advice/attention. - P333+P313
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
  If eye irritation persists: Get medical advice/attention. - P337+P313
  Get medical advice/attention if you feel unwell. - P314
  Specific treatment, see supplemental first aid information. - P321

Storage/Disposal

- Store locked up. - P405
  Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Other Toxic Effects - D2A
  Other Toxic Effects - D2B

2.2 Label elements

WHMIS

- Other Toxic Effects - D2A
  Other Toxic Effects - D2B

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA

See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Hazardous Components					
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Silica, amorphous fumed	**CAS:**112945-52-5	30% TO 60%	Ingestion/Oral-Rat LD50 · 3160 mg/kg	**EU DSD/DPD:** Not Classified - Classification criteria not met **EU CLP:** Not Classified - Classification criteria not met **OSHA HCS 2012:** Not Classified - Classification criteria not met	NDA
Aluminum oxide	**CAS:**1344-28-1 **EC Number:**215-691-6	15% TO 40%	NDA	**EU DSD/DPD:** Not Classified - Classification criteria not met **EU CLP:** Not Classified - Classification criteria not met **OSHA HCS 2012:** Not Classified - Classification criteria not met	NDA
Aluminum	**CAS:**7429-90-5 **EC Number:**231-072-3 **UN:**UN1309 (powder, coated), UN1396 (powder, uncoated)	1% TO 5%	NDA	**EU DSD/DPD:** Annex I - F; R11-15 **EU CLP:** Annex VI - Water-react. 2, H261; Flam. Sol. 1, H228 **OSHA HCS 2012:** STOT RE Cat 2	NDA
Nickel	**CAS:**7440-02-0 **EC Number:**231-111-4	1% TO 5%	NDA	**EU DSD/DPD:** Annex I - Carc.Cat.3; R40 R43 T; R48/23 **EU CLP:** Annex VI - Carc. 2 H351; STOT RE 1 H372; Skin Sens. 1 H317 **OSHA HCS 2012:** Skin Sens. 1A, Carc. 2	NDA

See Section 11 for Toxicological Information.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

Skin

- Wash skin with soap and water. Consult a physician if irritation persists.

Eye
- Flush eyes with plenty of water or saline . Consult a physician, if irritation persists.

Ingestion
- If swallowed, dilute by drinking large amounts of water. Never give anything by mouth to a convulsing or unconscious person. Do not induce vomiting. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

See Section 2 for Potential Health Effects.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- Dry chemical or CO2.

Unsuitable Extinguishing Media
- Foam and water may cause frothing.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Not an explosion hazard.
  While not considered "flammable" or "combustible" as defined by OSHA or DOT, the material will burn if ignited.
  Heavy streams of water, when directed into burning liquid, will cause frothing and spread of burning material.

Hazardous Combustion Products
- May include, and are not limited to: oxides of carbon.

5.3 Advice for firefighters

- Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Take proper precautions to minimize exposure by using appropriate personal protective equipment.

Emergency Procedures
- Keep unauthorized personnel away.

6.2 Environmental precautions

- Avoid run off to waterways and sewers.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
  Spills may be slippery and potentially hazardous to personnel or mobile equipment due to reduced traction.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Avoid contact with skin, eyes or clothing. Avoid generating mists or vapors. Spills may be slippery and potentially hazardous to personnel or mobile equipment due to reduced traction.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Empty containers may contain residual product. Do not cut or weld on containers. Keep container closed when not in use. Store away from heat, sparks, flames, oxidizers, and other incompatible substances.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines				
	Result	**ACGIH**	**NIOSH**	**OSHA**
Aluminum (7429-90-5)	TWAs	1 mg/m3 TWA (respirable fraction)	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Nickel (7440-02-0)	TWAs	1.5 mg/m3 TWA (inhalable fraction)	0.015 mg/m3 TWA	1 mg/m3 TWA
Aluminum oxide (1344-28-1)	TWAs	1 mg/m3 TWA (respirable fraction) *as Aluminum insoluble compounds*	Not established	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Exposure Control Notations

ACGIH

- Aluminum oxide as Aluminum insoluble compounds: **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Aluminum (7429-90-5): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Aluminum as Aluminum insoluble compounds: **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Nickel (7440-02-0): **Carcinogens:** (A5 - Not Suspected as a Human Carcinogen)

Exposure Limits Supplemental

ACGIH

- Aluminum oxide as Aluminum insoluble compounds: **TLV Basis - Critical Effects:** (pneumoconiosis; lower respiratory tract irritation; neurotoxicity)
- Aluminum (7429-90-5): **TLV Basis - Critical Effects:** (pneumoconiosis; lower respiratory tract irritation; neurotoxicity)
- Aluminum as Aluminum insoluble compounds: **TLV Basis - Critical Effects:** (pneumoconiosis; lower respiratory tract irritation; neurotoxicity)
- Nickel (7440-02-0): **TLV Basis - Critical Effects:** (dermatitis; pneumoconiosis)

8.2 Exposure controls

Engineering Measures/Controls

- Use only with adequate ventilation to keep exposures (airborne levels of dust, fume, vapor etc) below recommended exposure limits.

Personal Protective Equipment

Pictograms

- 

Respiratory

- Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8, Exposure Guidelines. Suggested respiratory protection: P95.

Eye/Face

- Wear safety glasses/goggles to avoid eye contact.

Skin/Body

- Wear impervious gloves to avoid direct skin contact.

General Industrial Hygiene Considerations

- In accordance with good industrial hygiene practices, precautions should be taken to avoid contact. If contact occurs, wash hands, face and other potentially exposed areas immediately after handling material (especially before eating, drinking, or smoking).

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste.

Key to abbreviations

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	**Appearance/Description**	Milky white abrasive paste with no odor.
Color	Milky white.	**Odor**	Odorless
Taste	No data available.	**Particulate Type**	Not relevant
Particulate Size	Not relevant	**Aerosol Type**	Not relevant
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Data lacking	**Melting Point**	Data lacking
Decomposition Temperature	Data lacking	**Heat of Decomposition**	Data lacking
pH	Data lacking	**Specific Gravity/Relative Density**	2.3 Water=1
Density	Data lacking	**Bulk Density**	Data lacking
Water Solubility	Negligible	**Solvent Solubility**	Data lacking
Viscosity	Data lacking	**Explosive Properties**	Not explosive.
Oxidizing Properties:	Not an oxidizer.		
Volatility			
Vapor Pressure	Data lacking	**Vapor Density**	Data lacking
Evaporation Rate	Data lacking	**VOC (Wt.)**	Data lacking
VOC (Vol.)	Data lacking	**Volatiles (Wt.)**	Data lacking
Volatiles (Vol.)	Data lacking		
Flammability			
Flash Point	> 500 F(> 260 C)	**UEL**	Data lacking
LEL	Data lacking	**Autoignition**	Data lacking
Self-Accelerating Decomposition Temperature (SADT)	Data lacking	**Heat of Combustion (ΔHc)**	Data lacking
Burning Time	Data lacking	**Flame Duration**	Data lacking
Flame Height	Data lacking	**Flame Extension**	Data lacking
Ignition Distance	Data lacking	**Flammability (solid, gas)**	Not flammable.

Environmental			
Half-Life	Data lacking	**Octanol/Water Partition coefficient**	Data lacking
Coefficient of water/oil distribution	Data lacking	**Bioaccumulation Factor**	Data lacking
Bioconcentration Factor	Data lacking	**Biochemical Oxygen Demand BOD/BOD5**	Data lacking
Chemical Oxygen Demand	Data lacking	**Persistence**	Data lacking
Degradation	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal conditions of use, storage, and transportation.

10.3 Possibility of hazardous reactions

- No dangerous reaction known under conditions of normal use. Methylphenylpolysiloxanes can generate formaldehyde when heated to >149°C (300° F).

10.4 Conditions to avoid

- Excess heat. Incompatible materials.

10.5 Incompatible materials

- Strong acids. Strong alkalis. Oxidizers.

10.6 Hazardous decomposition products

- Carbon monoxide, carbon dioxide, silicon dioxide and formaldehyde.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Component Name	CAS	Data
Silica, amorphous fumed (30% TO 60%)	112945-52-5	**Acute Toxicity:** orl-rat LD50:3160 mg/kg
Aluminum oxide (15% TO 40%)	1344-28-1	**Acute Toxicity:** ihl-rat TCLo:200 mg/m3/5H/28W-I
Aluminum (1% TO 5%)	7429-90-5	**Acute Toxicity:** ihl-man TCLo:4 mg/m3/1Y-I; ihl-rat TCLo:206 mg/m3/5H/30D-I
Nickel (1% TO 5%)	7440-02-0	**Acute Toxicity:** orl-rat TDLo:500 mg/kg/5D-I; ihl-rat TCLo:0.4 mg/m3/40W-I

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Aspiration Hazard	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met

Carcinogenicity	**EU/CLP** • Carcinogenicity 2 **OSHA HCS 2012** • Carcinogenicity 2
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**EU/CLP** • Skin Irritation 2 **OSHA HCS 2012** • Skin Irritation 2
Skin sensitization	**EU/CLP** • Skin Sensitizer 1 **OSHA HCS 2012** • Skin Sensitizer 1A
STOT-RE	**EU/CLP** • Specific Target Organ Toxicity Repeated Exposure 2 **OSHA HCS 2012** • Specific Target Organ Toxicity Repeated Exposure 2
STOT-SE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**EU/CLP** • Eye Irritation 2 **OSHA HCS 2012** • Eye Irritation 2

Target Organs
- Lungs

Route(s) of entry/exposure
- Inhalation, Skin, Eye, Ingestion

Medical Conditions Aggravated by Exposure
- If overheated, asthma and chronic lung disease.

Potential Health Effects

Inhalation

Acute (Immediate)
- If heated, vapors can cause irritation of respiratory tract, headache, nausea and other health effects listed below.

Chronic (Delayed)
- Inhalation of nickel or aluminum oxide can cause pneumoconiosis, pulmonary fibrosis and pulmonary edema.

Skin

Acute (Immediate)
- May cause irritation. May cause skin sensitization. Symptoms include redness, and skin rash.

Chronic (Delayed)
- Prolonged or repeated contact can cause mild irritation.

Eye

Acute (Immediate)
- May cause irritation.

Chronic (Delayed)
- No chronic effects expected.

Ingestion

Acute (Immediate)
- May cause irritation.

Chronic (Delayed)
- No chronic effects expected.

Mutagenic Effects
- Mutagenic effects not expected.

Carcinogenic Effects
- No information available for the product. Nickel metal IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as "possibly carcinogenic" to humans by IARC (Group 2B).

Carcinogenic Effects

	CAS	IARC	NTP
Nickel	7440-02-0	Group 2B-Possible Carcinogen	Reasonably Anticipated to be Human Carcinogen

Reproductive Effects
- No reproductive effects expected.

Section 12 - Ecological Information

12.1 Toxicity

- No information available for the product.

12.2 Persistence and degradability

- No information available for the product.

12.3 Bioaccumulative potential

- No information available for the product.

12.4 Mobility in Soil

- No information available for the product.

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

Potential Environmental Effects

- May cause long-term adverse effects in the aquatic environment.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Reuse or recycle material whenever possible. Material may be disposed of at an industrial landfill. All wastes containing the material should be properly labeled. Dispose of any waste residues according to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Not federally regulated in the U.S. if disposed of "as is." Otherwise, characterize in accordance with applicable regulations (40 CFR 261 or state equivalent in the U.S.)

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

14.6 Special precautions for user

- No special precautions.

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

- Not relevant.

14.8 Other information

DOT • Nickel has a reportable quantity of 100 lbs (45.4 kg) as listed in Appendix A to 49 CFR 172.101.

Section 15 - Regulatory Information

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

SARA Hazard Classifications • Acute, Chronic

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Silica, amorphous fumed	112945-52-5	No	No	No
Aluminum oxide	1344-28-1	Yes	Yes	Yes
Aluminum	7429-90-5	Yes	Yes	Yes
Nickel	7440-02-0	Yes	Yes Yes	Yes Yes

Inventory					
Component	**CAS**	**Canada DSL**	**EU EINECS**	**EU ELNICS**	**TSCA**
Silica, amorphous fumed	112945-52-5	Yes	No	No	No
Aluminum oxide	1344-28-1	Yes	Yes	No	Yes
Aluminum	7429-90-5	Yes	Yes	No	Yes
Nickel	7440-02-0	Yes	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Aluminum oxide	1344-28-1	15% TO 40%	Uncontrolled product according to WHMIS classification criteria
• Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
• Aluminum	7429-90-5	1% TO 5%	B6 (powder); Uncontrolled product according to WHMIS classification criteria
• Nickel	7440-02-0	1% TO 5%	D2A, D2B; B6, D2A (Raney)
• Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Aluminum oxide	1344-28-1	15% TO 40%	1 %
• Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
• Aluminum	7429-90-5	1% TO 5%	1 %
• Nickel	7440-02-0	1% TO 5%	0.1 %
• Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	F; R11 R15
● Nickel	7440-02-0	1% TO 5%	Carc.Cat.3; R40 R43 T; R48/23
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Not Listed
● Nickel	7440-02-0	1% TO 5%	Not Listed
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	F R:11-15 S:(2)-7/8-43
● Nickel	7440-02-0	1% TO 5%	T R:40-43-48/23 S:(2)-36/37/39-45
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

United States

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Not Listed
● Nickel	7440-02-0	1% TO 5%	Not Listed
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Not Listed 100 lb final RQ (no reporting of releases of this hazardous substance is required if the

● Nickel	7440-02-0	1% TO 5%	diameter of the pieces of the solid metal released is larger than 100 micrometers); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

● Aluminum oxide	1344-28-1	15% TO 40%	1.0 % de minimis concentration (fibrous forms)
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	1.0 % de minimis concentration (dust or fume only)
● Nickel	7440-02-0	1% TO 5%	0.1 % de minimis concentration
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Not Listed
● Nickel	7440-02-0	1% TO 5%	hazardous constituent - no waste number
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

—

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Not Listed
● Nickel	7440-02-0	1% TO 5%	carcinogen, initial date 10/1/89
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

● Aluminum oxide	1344-28-1	15% TO 40%	Not Listed
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Not Listed
● Nickel	7440-02-0	1% TO 5%	Not Listed
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

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United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

● Aluminum oxide	1344-28-1	15% TO 40%	
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	
● Nickel	7440-02-0	1% TO 5%	
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

United States - Rhode Island

Labor

U.S. - Rhode Island - Hazardous Substance List

● Aluminum oxide	1344-28-1	15% TO 40%	Toxic
● Aluminum oxide as Aluminum insoluble compounds		15% TO 40%	Not Listed
● Aluminum	7429-90-5	1% TO 5%	Toxic (dust, powder, welding fumes); Flammable (dust, powder, welding fumes)
● Nickel	7440-02-0	1% TO 5%	Toxic; Carcinogen
● Silica, amorphous fumed	112945-52-5	30% TO 60%	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Revision Summary		
Date	**MSDS No.**	**Changes**
22/June/2012		● Updated document format and content to be consistent with EU REACH and CLP requirements ● Added OSHA HCS 2012 classifications

Relevant Phrases (code & full text)

- H261 - In contact with water releases flammable gas
  H228 - Flammable solid
  R11 - Highly flammable.
  R15 - Contact with water liberates extremely flammable gases.

Last Revision Date
- 22/June/2012

Preparation Date
- 11/November/2011

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- INFORMATION HEREIN IS GIVEN IN GOOD FAITH AS AUTHORITATIVE AND VALID; HOWEVER, NO WARRANTY, EXPRESS OR IMPLIED, CAN BE MADE.

Key to abbreviations

NDA = No Data Available