

Issuing Date 02-Sep-2013

Revision date 30-Sep-2013

Revision Number 1

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product Identifier

Product Type Stellite - Welding powder
Product name STELLITE SFW - POWDER
Product code KSPCSFW 41 - POWDER

Type powder

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

Recommended Use Wear and Corrosion Resistant Welding Consumable.

Uses advised against None reasonably foreseeable.

1.3 Details of the supplier of the safety data sheet

importer

Prepared by Deloro Stellite
 1201 Eisenhower Drive North
 Goshen, IN 46526

For further information, please contact:

E-mail k-corp-product.safety@kennametal.com

1.4 Emergency telephone number +1 574 534 2585 (Office Hours 8am - 4pm ONLY)

2. Hazards Identification

2.1 Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute oral toxicity	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 1
Serious eye damage/eye irritation	Category 2
Respiratory sensitization	Sub-category 1B
Skin sensitization	Category 1
carcinogenicity	Category 1B
Reproductive toxicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1
Physical hazards	none

2.2 Label Elements

Product name STELLITE SFW - POWDER
Product code KSPCSFW 41 - POWDER
Symbols/Pictograms T - Toxic
R-code(s) Carc. cat. 3;R40 - T;R48/23 - R42/43 - R53

R-Phrases

R40 - Limited evidence of a carcinogenic effect
R53 - May cause long-term adverse effects in the aquatic environment
Not Applicable



signal word

DANGER

hazard statements

H302 - Harmful if swallowed
H310 - Fatal in contact with skin
H317 - May cause an allergic skin reaction
H330 - Fatal if inhaled
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
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life

precautionary statements

P361 - Remove/Take off immediately all contaminated clothing
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P280 - Wear protective gloves/protective clothing and eye/face protection
P201 - Obtain special instructions before use
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P281 - Use personal protective equipment as required
P310 - Immediately call a POISON CENTER or doctor/physician
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P260 - Do not breathe gas

precautionary statements

P310 - Immediately call a POISON CENTER or doctor/physician

2.3 Other Hazards

WARNING

..... May cause sensitization by skin contact. Vapors may be irritating to eyes, nose, throat, and lungs. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Product Information

Potential health effects

acute toxicity

Inhalation

Toxic by inhalation. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. May cause allergy or asthma symptoms or breathing difficulties if inhaled. MAY CAUSE ALLERGIC RESPIRATORY REACTION.

Eye Contact

Contact with eyes may cause irritation. May cause slight irritation.

INGESTION	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion may cause irritation to mucous membranes.
irritation	Repeated exposure may cause skin dryness or cracking.
Sensitization	May cause sensitization of susceptible persons.
Chronic effects	Prolonged exposure may cause chronic effects. . CNS and psychiatric effects, Parkinson-like symptoms. Languor, sleepiness and weakness in legs. A stolid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Repeated or prolonged exposure may cause central nervous system damage. Contains a known or suspected reproductive toxin. This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).
carcinogenicity	. This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).
Main Symptoms	May cause allergy or asthma symptoms or breathing difficulties if inhaled. MAY CAUSE ALLERGIC SKIN REACTION. Neurological disorders.
Aggravated Medical Conditions	Skin disorders, Neurological disorders, Respiratory disorders, Preexisting eye disorders, Allergies, Blood disorders, Overexposure may cause female and male reproductive disorder(s)
environmental hazard	See Section 12 for additional Ecological Information MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

3. Composition/information on Ingredients

Chemical name	Formula	EC No	CAS-No	Weight %	Classification	EU GHS Classification	REACH Reg. No.
Cobalt	Co	231-158-0	7440-48-4	25 - 50	R36 R42/43 R50/53 R62	Acute oral 4 (H302) Acute dust/mist 1 (H330) Eye damage 2 (H319) Resp. Sens. 1B (H334) Skin Sens. 1 (H317) Carc. 1B (H350) Repro. tox. 2 (H360) Aquatic Acute 1 M10 (H400) Aquatic Chronic 1 (H410)	01-2119517392-44
Tungsten carbide	WC	235-123-0	12070-12-1	25 - 50	-		01-2119486687-17
Chromium	Cr	231-157-5	7440-47-3	10 - 25	-		No data available
Nickel	Ni	231-111-4	7440-02-0	5 - 10	Carc.Cat.3; R40 R43 T; R48/23	STOT RE 1 (H372) S,7 Carc. 2 (H351) S,7 Skin Sens. 1 (H317) S,7 Aquatic Chronic 3 (H412)	No data available
Silicon Metal	Si	231-130-8	7440-21-3	2.5 - 3	-		No data available
Iron	Fe	231-096-4	7439-89-6	1 - 2.5	-		No data available
Boron	B	231-151-2	7440-42-8	1 - 2.5	-		No data available
Carbon	C	231-153-3	7440-44-0	0.1 - 1	-		No data available

4. First aid measures

General advice Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.1 Description of first aid measures

Eye Contact Keep eye wide open while rinsing. Call a physician immediately. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin contact Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash off immediately with soap and plenty of water. Consult a physician if necessary.

Inhalation Move to fresh air. Immediate medical attention is required. If not breathing, give artificial respiration. Oxygen or artificial respiration if needed. Get medical attention. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

INGESTION Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider Self-protection of the first aider. Wear suitable gloves. Avoid contact with skin.

4.2 Most important symptoms and effects, both acute and delayed CNS and psychiatric effects, Parkinson-like symptoms. Languor, sleepiness and weakness in legs. A stolid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. May cause allergy or asthma symptoms or breathing difficulties if inhaled

4.3 Indication of any immediate medical attention and special treatment needed Treat symptomatically. May cause sensitization by inhalation and skin contact.

Notes to Physician Treat symptomatically May cause sensitization by inhalation and skin contact May cause sensitization of susceptible persons

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Extinguishing media which must not be used for safety reasons none.

5.2 Special hazards arising from the substance or mixture Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. May cause sensitization by inhalation and skin contact. Carbon oxides.

5.3 Advice for fire- fighters Use personal protective equipment as required. In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Avoid contact with skin and eyes. Ensure adequate ventilation. . Use personal protective equipment as required. Avoid dust accumulation in enclosed space.

6.2 Environmental precautions Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

Pick up and transfer to properly labeled containers. Avoid generation of dust. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust.

6.4 Reference to other sections

7. Handling and Storage

7.1 Precautions for safe handling

Do not eat, drink or smoke when using this product. In case of insufficient ventilation, wear suitable respiratory equipment. Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as required. Avoid contact with eyes, skin and clothing. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Ensure adequate ventilation.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of the reach of children. Keep in properly labeled containers. Keep container tightly closed in a dry and well-ventilated place. Keep containers tightly closed in a cool, well-ventilated place. Store in a cool/low-temperature, well-ventilated, dry place away from heat and ignition sources.

Storage temperature

Storage Life

Stable under normal conditions

incompatible materials

7.3 Specific end use(s)

Welding. .

8. exposure controls/personal protection

8.1 Control parameters

Exposure controls

Chemical name	EU	United Kingdom	France	Spain	Germany
Cobalt		STEL: 0.3 mg/m ³ TWA: 0.1 mg/m ³		0.02 mg/m ³ TWA [VLA-ED]	
Tungsten carbide		TWA: 5 mg/m ³			
Chromium	2 mg/m ³ TWA	STEL: 1.5 mg/m ³ TWA: 0.5 mg/m ³	2 mg/m ³ TWA [VME] (indicative limit)	2 mg/m ³ TWA [VLA-ED] (indicative limit value)	
Nickel		STEL: 1.5 mg/m ³ TWA: 0.5 mg/m ³	1 mg/m ³ TWA [VME]; 1 mg/m ³ TWA [VME] (metal gratings)	1 mg/m ³ TWA [VLA-ED] (manufacturing, commercialization, and use restrictions under REACH)	
Silicon Metal		STEL: 30 ppm STEL: 12 mg/m ³ TWA: 10 mg/m ³ TWA: 4 mg/m ³	10 mg/m ³ TWA [VME]		
Chemical name	Italy	Portugal	Netherlands	Finland	Denmark
Cobalt	0.02 mg/m ³ TWA	0.02 mg/m ³ TWA [VLE-MP]	0.02 mg/m ³ TWA (dust and smoke, as Co)	0.02 mg/m ³ TWA	0.01 mg/m ³ TWA (dust, fume and powder)
Tungsten carbide		STEL: 10 mg/m ³		5 mg/m ³ TWA (as W)	
Chromium	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA [VLE-MP]	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA (dust)
Nickel	1.5 mg/m ³ TWA (inhalable fraction)	1.5 mg/m ³ TWA [VLE-MP] (inhalable fraction)		1 mg/m ³ TWA	0.05 mg/m ³ TWA (dust and powder)
Silicon Metal					10 mg/m ³ TWA
Chemical name	Austria	Switzerland	Poland	Norway	Ireland

Cobalt		0.05 mg/m ³ TWA [MAK] (aerosol and dust, inhalable)	0.02 mg/m ³ TWA [NDS] (dust and fume)	STEL: 0.06 mg/m ³	0.1 mg/m ³ TWA
Tungsten carbide				STEL: 10 mg/m ³	
Chromium	2 mg/m ³ TWA [TMW]	0.5 mg/m ³ TWA [MAK] (inhalable)	0.5 mg/m ³ TWA [NDS]	STEL: 1.5 mg/m ³	2 mg/m ³ TWA
Nickel		0.5 mg/m ³ TWA [MAK] (inhalable)	0.25 mg/m ³ TWA [NDS]	STEL: 0.15 mg/m ³	0.5 mg/m ³ TWA
Silicon Metal		3 mg/m ³ TWA [MAK] (respirable)		STEL: 20 mg/m ³	10 mg/m ³ TWA (total inhalable dust); 4 mg/m ³ TWA (respirable dust)
Carbon	5 mg/m ³ TWA [TMW] (alveolar dust with <1% Quartz)		4.0 mg/m ³ TWA [NDS] (natural, total inhalable dust); 1.0 mg/m ³ TWA [NDS] (natural, respirable dust); 6.0 mg/m ³ TWA [NDS] (synthetic, total inhalable dust)		

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

During Welding During Welding

8.2 Exposure controls

Personal precautions

Use personal protective equipment as required. Avoid contact with eyes, skin and clothing. Wash hands before eating, drinking or smoking. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product.

Engineering controls

Ensure adequate ventilation, especially in confined areas.

Eye Protection

Use suitable eye protection to guard against the effects of welding.

Skin Protection

Wear suitable gloves.

Hand Protection

Protective gloves. The product and work surface will be hot during and after welding. Ensure adequate protection is in place to stop individuals from burning themselves.

Respiratory protection

Use only with adequate ventilation. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures

Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling.

Special Precautions for users

Health Surveillance should be in place for employees who are exposed while using this product. Training required. Eye-irrigation bottle with pure water. If exposure limits are likely to be exceeded or if irritation or other symptoms are experienced, NIOSH/MSHA or EN 136 approved respiratory protection should be worn.

Environmental exposure controls

Do not allow to enter into soil/subsoil. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

physical state	solid
Appearance	metallic, powder
Odor	none
pH	Insoluble in water
Melting point / melting range	1285-1395 °C / 2340-2540 °F
flash point	not applicable
vapor pressure	not applicable
vapor density	not applicable
Water solubility	Insoluble in water
Autoignition temperature	N/A
viscosity	solid
density	8.44 g/cm ³
Explosive properties	not applicable

9.2. Other information

VOC Content (%)	Not Applicable
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10. Stability and Reactivity

10.1 Reactivity	Stable under normal conditions
10.2 Chemical stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	Stable under normal conditions
10.4 Conditions to avoid	Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
10.5 Incompatible materials	Acids. Strong oxidizing agents.
10.6 Hazardous decomposition products	Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

11. Toxicological Information

11.1 Information on toxicological effects

Product Information

<u>Acute toxicity</u>	
<u>Inhalation</u>	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<u>Eye Contact</u>	Contact with eyes may cause irritation. May cause slight irritation.
<u>Skin contact</u>	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Prolonged contact may cause redness and irritation. Prolonged skin contact may defat the skin and produce dermatitis. May cause sensitization by skin contact.
<u>Neurological effects</u>	Repeated or prolonged exposure may cause central nervous system damage. Prolonged or excessive exposure to manganese in dust or fume may cause irreversible central nervous system damage (Manganism). Symptoms resemble Parkinson's disease and include tremors, impaired speech, mask like face and impaired movement.

INGESTION	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea Ingestion may cause irritation to mucous membranes
irritation	Repeated exposure may cause skin dryness or cracking.
corrosivity	No information available
Sensitization	May cause sensitization of susceptible persons

Chemical name	Oral LD50	dermal LD50	Inhalation LC50
Cobalt	550 mg/kg bw	>2000 mg/kg bw	0.05 mg/L
Tungsten carbide	> 2000 mg/kg bw (OECD 401)	> 2000 mg/kg bw (OECD 402)	> 5.3 mg/L (4h) (OECD 403)
Chromium	LD50 >5000 mg/kg bw	Data waiving - Study Scientifically Unjustified	LC50 >5.41 mg/L air (analytical)
Nickel	>9000 mg/kg bw	Data waiving - Other Justification	NOAEC >=10.2 mg/L air
Silicon Metal	LD50 >3160 mg/kg bw	LD50 >5000 mg/kg bw	Acutely Non Toxic
Iron	= 984 mg/kg (Rat)		
Boron	650 mg/kg (Rat)	Not Listed in C&L Inventory	Not Listed in C&L Inventory
Carbon	> 10000 mg/kg (Rat)		

chronic toxicity Prolonged exposure may cause chronic effects. . CNS and psychiatric effects, Parkinson-like symptoms. Languor, sleepiness and weakness in legs. A stolid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Repeated or prolonged exposure may cause central nervous system damage. Contains a known or suspected reproductive toxin. This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

carcinogenicity . This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

Carcinogenic effects The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	EU Annex I Carcinogen Information	UK	IARC
Cobalt		Capable of causing cancer and/or heritable genetic damage	Group 2B - Possible Human Carcinogen
Chromium	Category 3		Group 3 - Not Classified as a Human Carcinogen
Nickel	Category 3		Nickel Compounds: Group 1 - Known Human Carcinogen - Nickel, Metallic & Alloy: Group 2B - Possible Human Carcinogen

MUTAGENIC EFFECTS None known

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

developmental toxicity None known

Target organ effects blood, Central Vascular System (CVS), EYES, Lungs, Nasal Cavities, respiratory system, skin

Neurological effects Repeated or prolonged exposure may cause central nervous system damage. Prolonged or excessive exposure to manganese in dust or fume may cause irreversible central nervous system damage (Manganism). Symptoms resemble Parkinson's disease and include tremors, impaired speech, mask like face and impaired movement.

11.2 Other Information

none

Substance related information

12. Ecological Information

12.1. Ecotoxicity

ecotoxicity VERY TOXIC TO AQUATIC ORGANISMS MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

Chemical name	Algae toxicity	Acute Fish toxicity	Toxicity to Microorganisms	Daphnia magna
Cobalt	EC50 - 270ug/L	NOEC - 100 mg/L - Cobalt Powder	Not available	LOEC - 5.6 mg/L, LC50 > 100 mg/L
Tungsten carbide	Desmodesmus subspicatus (algae) 72-h EC50 > 1 mg/L (OECD 201)	96-h Lc50 > 1000 mg/L (OECD 203) Zebrafish		48-h EC50 > 1000 mg/L (OECD 202)
Chromium	Data Waiving - Study Scientifically Unjustified	Data Waiving - Study Scientifically Unjustified	Not available	Data Waiving - Study Scientifically Unjustified
Nickel	EC10 - 316.5 ug/L	LC50 - 15.3 mg/L	Not available	LC50 >200ug/L (@6-6.5 pH), 13ug/L (@8-8.5pH)
Silicon Metal	Data Waiving - Study Scientifically Unjustified	Data Waiving - Other Justification	Not available	Data Waiving - Study Scientifically Unjustified
Iron	NOEC - 1.4 mg/L	Data Waiving - Study Scientifically Unjustified	Not available	Data Waiving - Study Scientifically Unjustified

12.2 Persistence and degradability Product/Substance is inorganic. not applicable.

12.3 Bioaccumulative potential This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

12.4 Mobility in soil No information available

12.5 Results of PBT and vPvB assessment The components in this formulation do not meet the criteria for classification as PBT or vPvB

12.6 Other adverse effects

13. Disposal Considerations

13.1 Waste treatment methods

Disposal Considerations It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Improper disposal or reuse of this container may be dangerous and illegal. Refer to applicable local, state and federal regulations as well as industry standards.

Waste from residues/unused products Reuse or recycle. Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

EWC Waste Disposal No.

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OTHER INFORMATION

Waste codes should be assigned by the user based on the application for which the product was used.

14. Transport Information

IMO/IMDG

14.1 UN number UN3077
14.3. Transport hazard class(es) 9
14.4 Packing group III

ADR/RID

14.1 UN number UN3077
14.3. Transport hazard class(es) 9
14.4 Packing group III
14.5 Environmental hazards yes
Classification code M7

ICAO/IATA-DGR

14.1 UN number UN3307
14.5 Environmental hazards yes
14.8 Additional information

15. regulatory information

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

International Inventories

EU Regulations
EINECS/ELINCS
ENCS

-
-

Legend

EU Inventory Legend EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

15.2 Chemical Safety Assessment

Chemical Safety Assessment available for this product

16. other information

Prepared by Kennametal Inc. 1600 Technology Way Latrobe, PA 15650, USA
Issuing Date 02-Sep-2013
Revision date 30-Sep-2013
Revision Note not applicable

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

Kennametal urges each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific SDSs, we are not and cannot be responsible for SDS's obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us for the most current version.

End of Safety Data Sheet