SHEET 0712283

Safety Data Sheet
Date of Issue: |Revision Date: 05/27/2016 |Revision Number:
Imperial Supplies Part Number: 0712283

SECTION 1: IDENTIFICATION

1.1. Product Identifier
Product Form:
Product Name: NYLON-INSULATED DOUBLE CRIMP DISCONNECTORS
CAS No:
Synonyms: Not Available

1.2. Intended Use of the Product
Use of the substance/mixture: Electrical terminals

1.3. Name, Address, and Telephone of the Responsible Party
Company
K.S.TERMINALS INC.
No.8, Zhangbin E.3rd Road
Xianxi Township, Changhua County 507
Email: Huichen@ksterminals.com.tw
Phone: +886-4-7580001-529

1.4. Emergency Telephone Number
Emergency number | +886-4-7580001
|

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Not Applicable|

|

|

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)				
Signal Word (GHS-US)	NOT APPLICABLE			
Hazard Statements (GHS-US)	Not Applicable			
Precautionary Statements (GHS-US)	Not Applicable			

2.3. Other Hazards

Other Hazards Not Contributing to the Classification:

2.4. Unknown Acute Toxicity (GHS-US)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name	Product identifier	%	Classification (GHS-US)

Full text of H-phrases: See Section 16

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Brass	12597-71-6	49.342948	
Copper	7440-50-8	31.569361	
Poly(hexamethyleneadipamide)	32131-17-2	19.031984	
Tin	7440-31-5	0.049387	
Phosphorus	7723-14-0	0.006315	
Lead	7439-92-1	0.000005	

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General:

First-aid Measures After Inhalation: If fumes, aerosols or combustion products are inhaled remove from contaminated area.

Other measures are usually unnecessary.

First-aid Measures After Skin Contact: If skin or hair contact occurs:

Flush skin and hair with running water (and soap if available).

Seek medical attention in event of irritation.

In case of burns:

Immediately apply cold water to bum either by immersion or wrapping with saturated clean cloth.

DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury.

DO NOT break blister or remove solidified material.

Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain.

For large bums, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth.

DO NOT apply ointments, oils, butter, etc. to a bum under any circumstances.

Water may be given in small quantities if the person is conscious.

Alcohol is not to be given under any circumstances.

Reassure.
Treat for shock by keeping the person warm and in a lying position.
Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.
For thermal burns:
Decontaminate area around bum.
Consider the use of cold packs and topical antibiotics.
For first-degree burns (affecting top layer of skin)
Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides.
Use compresses if running water is not available.
Cover with sterile non-adhesive bandage or clean cloth.
Do NOT apply butter or ointments; this may C3use infection.
Give over-the counter pain relievers if pain increases or swelling, redness, fever occur.
For second-degree bums (affecting top two layers of skin)
Cool the bum by immerse in cold running water for 10-15 minutes.
Use compresses if running water is not available.
Do NOT apply ice as this may lower body temperature arid cause further damage.
Do NOT break blisters or apply butter or ointments; this may cause infection.
Protect bum by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape. To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):
Lay the person flat.
Elevate feet about 12 inches.
Elevate bum area above heart level, if possible.
Cover the person with coat or blanket
Seek medical assistance.
For third-degree bums
Seek immediate medical or emergency assistance.
In the mean time:
Protect bum area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave
Separate burned toes and fingers with dry, sterile dressings.
Do not soak bum in water or apply ointments or butter, this may cause infection.
To prevent shock see above.
For an airway bum, do not place pillow under the person's head when the person is tying down. This can close the airway.

Have a person with a facial bum sit up.
Check pulse and breathing to monitor for shock until emergency help arrives.
First-aid Measures After Eye Contact: If this product comes in contact with eyes:
Wash out immediately with water.
If irritation continues, seek medical attention.
Removal of contact tenses after an eye injury should only be undertaken by skilled personnel.
DO NOT attempt to remove particles attached to or embedded in eye.
Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing above and below the eye.
Seek urgent medical assistance, or transport to hospital.
First-aid Measures After Ingestion: Immediately give a glass of water.
First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/Injuries:
Symptoms/Injuries After Inhalation:
Symptoms/Injuries After Skin Contact:
Symptoms/Injuries After Eye Contact:
Symptoms/Injuries After Ingestion:
Chronic Symptoms: Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
Animal testing shows long term exposure to aluminium oxides may cause lung disease and cancer, depending on the size of the particle. The smaller the size, the greater the tendencies of causing harm.
Copper has fairly low toxicity. Some rare hereditary conditions (Wilson disease or hepatolenticular degeneration) can lead to accumulation of copper on exposure, causing irreversible damage to a variety of organs (liver, kidney CNS. bone, vision) and lead to death.
Manganese is an essential trace element Chronic exposure to low levels of manganese can include a ni3sk-like facial expression, spastic gait, tremors, slurred speech, disordered muscle tone, fatigue, anorexia, toss of strength and energy, apathy and poor concentration.
There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Welding or flame cutting of metals with zinc or zinc dust coatings may result in inhalation of zinc oxide fume; high concentrations of zinc oxide fume may result in 'metal fume fever"; also known as 'brass chills', an industrial disease of short duration. [I.LO] Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in enclosed or poorly ventilated areas
Workers exposed to nylon dusts for 20 years have, on occasion, shown respiratory tract lesions, including sarcoid-like lung granulomas. Occupational exposure to nylon dusts may result in pathologic lung changes.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
For copper intoxication:
Unless extensive vomiting has occurred empty the stomach by lavage with water milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).
Administer egg white and other demulcents.
Maintain electrolyte and fluid balances.
Morphine or meperidine (Demerol) may be necessary for control of pain.
If symptoms persist or intensify (especially circulatory collapse or cerebral disturbances, try BAL intramuscularly or penicillamine in accordance with the supplier's recommendations.
Treat shock vigorously with blood transfusions and perhaps vasopressor amines.
If intravascular haemolysis becomes evident protect the kidneys by maintaining a diuresis with mannitol and perhaps by alkalinising the urine with sodium bicarbonate.
It is unlikely that methylene blue would be effective against the occassional methaemolobinemia and it might exacerbate the subsequent haemolytic episode.
Institute measures for impending renal and hepatic failure.
[GOSSELIN, SMITH & HODGE: Commercial Toxicology of Commercial Products]

A role for activated for charcoals or emesis is, as yet, unproven.
In severe poisoning CaNa2EDTA has been proposed.
[ELLENHORN & BARCELOUX: Medical Toxicology]

Copper, magnesium, aluminium. antimony, iron, manganese, nickel, zinc (and their compounds) in welding. brazing, gaivanising or smelling operations all give rise to thermally produced particulates of smaller dimension than may be produced if

the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce metal fume fever in workers from an acute or long term exposure.
Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend (Monday Morning Fever)
Pulmonary function test may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormslities resolve after several month.
Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

[Ellenhorn and Barceloux: Medical Toxicology]
Both dermal and oral toxicity of manganese salts is low because of limited solubility of manganese. No known permanent pulmonary sequelae develop after acute manganese exposure. Treatment is supportive.

[Ellenhorn and Barceloux: Medical Toxicology]
In clinical trials with miners exposed to manganese-containing dusts, L-dopa relieved extrapyramidal symptoms of both hypo kinetic and dystonic patients. For short periods of time symptoms could also be controlled with scopolamine and amphetamine. BAL and calcium EDTA prove ineffective.
[Gosselinetal: Clinical Toxicology of Commercial Products.]

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media
Suitable Extinguishing Media: Metal dust fires need to be smothered with sand, inert dry powders.
DO NOT USE WATER, C02 or FOAM.
Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met L-X to smother fire.
Confining or smothering material is preferable to applying water as chemical reaction may produce flammable and explosive hydrogen gas.

Do NOT direct 3 solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.
DO NOT use halogenated fire extinguishing agents.
Unsuitable Extinguishing Media:

5.2. Special Hazards Arising From the Substance or Mixture
Fire Hazard: Reacts with acids producing flammable / explosive hydrogen (H2) gas.

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.
Explosion Hazard: DO NOT disturb burring dust. Explosion may result if dust rs stirred into a cloud, by providing oxygen to a large surface of hot metal.
DO NOT use water or foam as generation of explosive hydrogen may result.
With the exception of the metals that bum in contact with air or water (for example, sodium), masses of combustible metals do not represent unusual fire risks because they have the ability to conduct heat away from hot spots so efficiently that the heat of combustion cannot be maintained - this means that it will require a lot of heat to ignite a mass of combustible metal Combustion products include; carbon monoxide (CO) carbon dioxide (C02) nitrogen oxides (NOx) other pyrolysis products typical of burning organic material When aluminium oxide dust is dispersed in air, firefighters should wear protection against inhalation of dust particles, which can also contain hazardous substances from the tire absorbed on the alumina particles. May emit poisonous fumes. CARE: Contamination of heated / molten liquid with water may cause violent steam explosion, with scattering of hot contents.
Reactivity:

5.3. Advice for Firefighters
Precautionary Measures Fire:
Firefighting Instructions: Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves.
Prevent, by any means available, spillage from entering drains or water courses.
Use water delivered as a fine spray to control fire and cool adjacent area.
Protection During Firefighting:

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures
General Measures:

6.1.1. For Non-emergency Personnel
Protective Equipment:
Emergency Procedures:

6.1.2. For Emergency Responders
Protective Equipment:
Emergency Procedures:

6.2. Environmental Precautions

6.3. Methods and Material for Containment and Cleaning Up
For Containment:
Methods for Cleaning Up: Minor Spills: Clean up all spills immediately.
Avoid breathing dust and contact with skin and eyes.
Wear protective clothing, gloves, safety glasses and dust respirator.
Use dry dean up procedures and avoid generating dust.
Major Spills:
If molten:
Contain the flow using dry sand or salt flux as a dam.
All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated, rust free and approved for such use.
Allow the spill to cool before remelting scrap.

Moderate hazard.
CAUTION: Advise personnel in area.
Alert Emergency Services and tell them location and nature of hazard.
Control personal contact by wearing protective clothing.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: For molten metals;

Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off water. Water and other forms of contamination on or contained in scrap or remelt ingotare known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment.

The greatest potential for injury caused by molten materials occurs during purging of machinery (moulders, extruders etc.)

It is essential that workers in the immediate area of the machinery wear eye and skin protection (such as full face, safety glasses, heat resistant gloves, overalls and safety boots) as protection from thermal bums.

Fumes or vapours emitted from hot melted materials, during converting operations, may condense on overhead metal surfaces or exhaust ducts. The condensate may contain substances which are irritating or toxic. Avoid contact of that material with the skin.

Avoid all personal contact, including inhalation.

Wear protective clothing when risk of exposure occurs.

Use in a well-ventilated area.

Prevent concentration in hollows and sumps.

Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).

Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. Establish good housekeeping practices.

Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.

Hygiene Measures:

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures:

Suitable container:

PE bag.

Lined metal can, lined metal pail/can.

Plastic pail.

Polyliner drum.

Storage Conditions:

Incompatible with hot chlorinated rubber.

In the presence of chlorine trifluoride may react violently and ignite.

May initiate explosive polymerization of olefin oxides including ethylene oxide.

Produces exothermic reaction above 200 C with halocarbons and an exothermic reaction at ambient temperatures with halocarbons in the presence of other metals.

WARNING: Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potent airy explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.

The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono-or poly-fluorobenzene show extreme sensitivity to heat and are explosive.

Many metals may incandesce, read violently, ignite or react explosively upon addition of concentrated nitric acid.

Reacts violently with caustic soda, other alkalies - generating heat, highly flammable hydrogen gas.

If alkali is dry heat generated may ignite hydrogen - if alkali is in solution may cause violent foaming.

Metals exhibit varying degrees of activity. Reaction is reduced in the massive form (sheet, rod. or drop), compared with finely divided forms. The less active metals will not bum in air but:

Can react exothermically with oxidising acids to form noxious gases..

Catalyse polymerization and other reactions, particularly when finery divided.

React with halogenated hydrocarbons (for example, copper dissolves when heated in carbon tetrachloride), sometimes forming explosive compounds.

Finely divided metal powders develop pyrophoricity when a critical specific

surface area is exceeded; this is ascribed to high heat of oxide formation on exposure to air.
Safe handling is possible in relatively low concentrations of oxygen in an inert gas.
Several pyrophoric metals, stored in glass bottles have ignited when the container is broken on impact. Storage of these materials moist and in metal containers is recommended.
Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.
Elemental metals may react with azo/diazo compounds to form explosive products.
Some elemental metals form explosive products with halogenated hydrocarbons.

Other information: Store in original containers. Keep containers securely sealed.
Store in a cool, dry area protected from environmental extremes.
Store away from incompatible materials and foodstuff containers.

7.3. Specific End Use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters
OCCUPATIONAL EXPOSURE LIMITS (OEL)
INGREDIENT DATA
Source
Ingredient
Material name
TWA
STEL
Peak
Notes

US OSHA Permissible Exposure Levels (PELs) -Table Z1
Copper
Copper - Fume / Copper

0.1 mg/m3 /1 mg/m3
Not
Available
Not
Available
(as Cu) / (as Cu);Dusts and mists

US OSHA Permissible Exposure Levels (PELs) -Table Z3
Copper
Inert or Nuisance Dust
5 mg/m3/ 15mg/m3/ 15mppcf/
50 mppcf
Not
Available
Not
Available
Respirable fraction;All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1. / Total dust All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1.

US ACGIH Threshold Limit Values (TLV)
Copper
Copper - Fume, as Cu / Copper -Dusts and mists, as Cu
02 mg/m3 /1 mg/m3
Not
Available
Not
Available
TLV® Basis: Irr; Gl; metal fume fever BEI

US NIOSH Recommended Exposure Limits (RELs)
Copper
Copper metal dusts, Copper metal fumes
1 mg/m3

Not
Available
Not
Available
[*Note: The REL also applies to other copper compounds (as Cu) except Copper fume.]

US OSHA Permissible Exposure Levels (PELs) -Table Z1
Tin
Tin, organic compounds
0.1 mg/m3
Not
Available
Not
Available
(as Sn)

US OSHA Permissible Exposure Levels (PELs) -Table Z1
Tin
Tin, inorganic compounds
2 mg/m3
Not
Available
Not
Available
(as Sn); (except oxides)

US NIOSH Recommended Exposure Limits (RELs)
Tin
Metallic tin, Tin flake. Tin metal, Tin powder
2 mg/m3
Not
Available
Not
Available
[*Note: The REL also applies to other inorganic tin compounds (as except tin oxides.]

US OSHA Permissible Exposure Levels (PELs) -Table Z3
Phosphorus
Inert or Nuisance Dust
5 mg/m3/
15 mg/m3 /
15 mppcf / 50mppcf
Not
Available
Not
Available
Respirable fraction;All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1. / Total dust; All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1.

US NIOSH Recommended Exposure Limits (RELs)
Phosphorus
Elemental phosphorus, White phosphorus
0.1 mg/m3
Not
Available
Not
Available
Not Available

US OSHA Permissible Exposure Levels (PELs) -Table Z1
Lead
Lead, inorganic
0.05 mg/m3
Not
Available
Not
Available
(as Pb);see 1910.1025; If an employee is exposed to lead for more than 8 hours in any work day the permissible exposure limit, as a time weighted average (TWA) for

that day shall be reduced according to the following formula: Maximum permissible limit (in µg/m3)=400÷hours worked in the day.

US ACGIH Threshold Limit Values (TLV)
Lead
Lead and inorganic compounds, as Pb
0.05 mg/m3

Not Available
Not Available
TLV® Basis: CNS & PNS impair; hematologic eff; BEI

US NIOSH Recommended Exposure Limits (RELs)
Lead
Lead metal, Plumbum
0.050 mg/m3

Not Available
Not Available
See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) - see Appendix C.]

Ingredient
Material name
TEEL-1
TEEL-2
TEEL-3

copper
Copper
1 mg/m3
1 mg/m3
45 mg/m3

tin
Tin
6 mg/m3
67 mg/m3
400 mg/m3

phosphorus
Phosphorus (red)
0.27 mg/m3
3mg/m3
3 mg/m3

lead
Lead
0.15mg/m3
120 mg/m3
700 mg/m3

Ingredient
Original IDLH
Revised IDLH

copper
N.E. mg/m3 / N.E. ppm
100mg/m3

tin
Unknown mg/m3 / 400 mg/m3 / Unknown ppm
25 mg/m3 / 100 mg/m3

lead
700 mg/m3
100 mg/m3

8.2. Exposure Controls

Appropriate Engineering Controls	For molten materials: Provide mechanical ventilation; in general such ventilation should be provided at compounding/ converting areas and at fabricating/ filing work stations where the material is heated. Local exhaust ventilation should be used over and in the vicinity of machinery involved in handling the molten material. Keep dry!! Processing temperatures may be well above boiling point of water, so wet or damp material may cause a serious steam explosion if used in unvented equipment. Metal dusts must be collected at the source of generation as they are potentially explosive. Avoid ignition sources. Good housekeeping practices must be maintained. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions.
Personal Protective Equipment	
Materials for Protective Clothing	
Hand Protection	The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Suitability and durability of glove type is dependent on usage. Protective gloves eg. Leather gloves or gloves 'with

	Leather facing. When handling hot materials wear heat resistant, elbow length gloves. Rubber gloves are not recommended when handling hot objects, materials. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present polychloroprene. nitrile rubber. butyl rubber.
Eye Protection	Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.
Skin and Body Protection	When handling hot or molten liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. Usually handled as molten liquid which requires worker thermal protection and increases hazard of vapour exposure. CAUTION: Vapours maybe instating Overate P.V.C. apron. Barrier cream.
Respiratory Protection	Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 1492001. ANSI Z88 or national equivalent).
Thermal Hazard Protection	Not Available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	Solid
Appearance	Metal silver + various colors NY
Odor	Not Available
Odor Threshold	Not Available
pH	Not Available
Relative Evaporation Rate (butyl acetate=1)	Not Available
Melting Point	Not Available
Freezing Point	Not Available
Boiling Point	Not Available
Flash Point	Not Available
Auto-ignition Temperature	Not Available
Decomposition Temperature	Not Available
Flammability (solid, gas)	Not flammable
Vapor Pressure	Not Available
Relative Vapor Density at 20 °C	Not Available
Relative Density	Not Available
Specific Gravity	Not Available
Solubility	Not Available
Partition coefficient: n-octanol/water	Not Available
Viscosity	Not Available
Lower Flammable Limit	Not Available
Upper Flammable Limit	Not Available

9.2. Other Information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

See section 7.

10.2 Chemical Stability
Unstable in the presence of incompatible materials.
Product is considered stable.
Hazardous polymerisation will not occur.

10.3 Possibility of Hazardous Reactions
See section 7.

10.4 Conditions to Avoid
See section 7.

10.5 Incompatible Materials
See section 7.

10.6 Hazardous Decomposition Products
See section 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects
Acute Toxicity:
Skin Corrosion/Irritation:
Serious Eye Damage/Irritation:
Respiratory or Skin Sensitization:
Germ Cell Mutagenicity:
Carcinogenicity:
Reproductive Toxicity:
Specific Target Organ Toxicity (Single Exposure):
Specific Target Organ Toxicity (Repeated Exposure):
Aspiration Hazard:
Symptoms/Injuries After Inhalation: The material is not thought to produce
adverse hearth effects or irritation of the respiratory tract (as classified by EC

Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Not normally a hazard due to non-volatile nature of product.

The inhalation of small particles of metal oxide results in sudden thirst a sweet metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea excessive urination and prostration may also occur.
Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning. Inhalation of freshly fumed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in 'metal fume fever'. Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet metallic or foul taste in the mouth.
Symptoms/Injuries After Skin Contact: The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Though considered non-harmful, slight irritation may result from contact because of the abrasive nature of the aluminium oxide particles. Thus it may cause itching and skin reaction and inflammation.
Exposure tn copper, by skin, has come from its use in pigments, ointments, ornaments. jewellery dental amalgams and II IDs (intra-uterine devices), and in killing fungi and algae. Although copper is used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications.
Open cuts, abraded or irritated skin should not be exposed to this material.
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Symptoms/Injuries After Eye Contact: Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windbum). Slight abrasive damage may also result. Copper salts, in contact with the eye, may produce inflammation of the conjunctiva, or even ulceration and cloudiness of the cornea.
Symptoms/Injuries After Ingestion: The material has NOT been classified by EC

Directives or other classification systems as "harmful by ingestion'. This is because of the lack of corroborating animal or human evidence.
A metallic taste, nausea, vomiting and burning feeling in the upper stomach region occur after ingestion of copper and its derivatives. The vomitus is usually green/blue and discolours contaminated skin.
Poisonings rarely occur after oral administration of manganese salts because absorbed from the gut.
Chronic Symptoms: Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Animal testing shows long term exposure to aluminium oxides may cause lung disease and cancer, depending on the size of the particle. The smaller the size, the greater the tendencies of causing harm.
Copper has fairly low toxicity. Some rare hereditary conditions (Wilson disease or hepatolenticular degeneration) can lead to accumulation of copper on exposure, causing irreversible damage to a variety of organs (liver, kidney, CNS, bone, vision) and lead to death.
Manganese is an essential trace element. Chronic exposure to tow levels of manganese can include a mask-like facial expression, spastic gait, tremors, slurred speech, disordered muscle tone, fatigue, anorexia, toss of strength and energy, apathy and poor concentration.
There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment
Welding or flame cutting of metals with zinc or zinc dust coatings may result in inhalation of zinc oxide fume; high concentrations of zinc oxide fume may result in 'metal fume fever"; also known as 'brass chills', an industrial disease of short duration. [I.L.O] Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in enclosed or poorly ventilated areas.
Workers exposed to nylon dusts for 20 years have, on occasion, shown respiratory tract lesions, including sarcoid-like lung granulomas. Occupational exposure to nylon dusts may result in pathologic lung changes.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

12.2. Persistence and Degradability
Persistence: Water/Soil
No Data available for all ingredients
Persistence: Air
No Data available for all ingredients

12.3. Bioaccumulative Potential

Ingredient	Bioaccumulation
Phosphorus	HIGH (BCF = 2310000)

12.4. Mobility in Soil
No Data available for all ingredients

12.5. Other Adverse Effects

SECTION 13: DISPOSAL CONSIDERATIONS
13.1. Waste treatment methods
Waste Disposal Recommendations: DO NOT allow wash water from cleaning or process equipment to enter drams.
It may be necessary to collect all wash water for treatment before disposal.
In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
Where in doubt contact the responsible authority.
Additional Information:

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	
Hazard Class		<PICTOGRAM PHRASE>
Identification Number		
Label Codes		
ERG Number		

14.2 In Accordance with IMDG

Proper Shipping Name	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	
Hazard Class		
Identification Number		
Label Codes		<PICTOGRAM PHRASE>
ntification Of The		
Substance/m		
EmS-No. (Fire)		
EmS-No. (Spillage)		

14.3 In Accordance with IATA

Proper Shipping Name	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	
Identification Number		<PICTOGRAM PHRASE>
Hazard Class		
Label Codes		
ntification Of The		
Substance/m		
ERG Code (IATA)		

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Name

Reportable Quantity in Pounds (lb)

Reportable Quantity in kg

Copper

5000

2270

Lead

10

4.54

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard	NO

|Delayed (chronic) health hazard NO
|Fire hazard
|NO
|Pressure hazard
|NO
|Reactivity hazard
|NO

Toxic Substances Control Act (TSCA) |

15.2 US State Regulations

State Regulations

US. CALIFORNIA PROPOSITION 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - CALIFORNIA PREPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE

Lead and lead compounds: Lead Listed.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date	05/27/2016
Other Information	This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

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Grainger disclaimer.

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