

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

Product Identification

Product Name: Ceramic Fiber Blanket

Common Name(s): Ceramic fiber,
Aluminosilicate Refractory Fiber,
Refractory Ceramic Fiber (RCF)

2. HAZARDS IDENTIFICATION

- May cause temporary, mild mechanical irritation to the eyes, skin, nose and/or throat.
- Pre-existing skin and respiratory conditions may be aggravated by exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Indexes: $\text{Al}_2\text{O}_3 + \text{SiO}_2 > 97\%$
 $\text{Al}_2\text{O}_3 > 45\%$
 $\text{Fe}_2\text{O}_3 < 1.0\%$
 $\text{Na}_2\text{O} + \text{K}_2\text{O} \leq 0.5$

4. FIRST AID MEASURES

Eye Contact: If eyes become irritated, wash immediately with large amounts of lukewarm water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes. Get medical attention if irritation persists.

Skin Contact: If skin becomes irritated, do not rub or scratch exposed skin. Wash area of contact thoroughly with soap and water. Using a skin cream or lotion after washing may be helpful. Change into clean clothing.

Ingestion: Relocate affected individual to an environment of clean and fresh air. Drink plenty of water seek medical help if symptoms persist.

Inhalation: Remove affected individual to a dust free place; seek medical help if irritation persists.

Notes to physicians: Skin and respiratory effects are the result of mechanical irritation: fiber exposure does not result in allergic manifestations.

5. FIRE FIGHTING MEASURES

Non-combustible (does not burn) product.
Auto-ignition temperature: none

NFPA Unusual Hazards: none

Unusual fire and explosion hazards: none

Extinguishing Media: use proper extinguishing media for the surrounding fire.

Fire fighting protective equipment: wear full bunker gear including positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Avoid creating airborne dust. Maintain routine housecleaning procedures. Vacuum only with HEPA filtered equipment, if sweeping is necessary, use a dust suppressant and keep material in closed containers. Do not use compressed air for cleanup. Workers should wear gloves, goggles and approved respirator. Avoid cleanup procedures that could cause water pollution.

7. HANDLING AND STORAGE

CLEAN-UP:

Clean up dust carefully. Use wet sweeping or high efficiency vacuum to remove dust. Do not use compressed air. During after-service removal activities, wet exposed material frequently to minimize airborne dust. A surfactant may be added to the water to improve the wetting process. Use only enough water to wet the insulation. Do not allow water to accumulate on floors.

EMPTY CONTAINERS:

Product packaging may contain residue. Do not reuse.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components OSHA Supplier:

Alumino--silicate fiber None established

ACGIH TLV:

Aluminosilicate fiber—none established

For Alumino--silicate fiber, refer to OSHA guidance regarding "Particulates not otherwise Regulated" (PNOR). Control airborne dust levels as follows:

Components Particle size OSHA:

PNOR total dust 15mg/m³

Respirable dust 5mg/m³

ACGIH particulates not otherwise classified (PNOC)—INHALABLE

PARTICULATE: 10mg/m³. RESPIRABLE PARTICULATE: 3mg/m³

Other Occupational Exposure Levels (OEL)

RCF-related occupational exposure limits vary from country to country. Listed here are a few regulatory OEL examples: Australia--0.5f/cc; Austria—0.5f/cc;

Canada—0.5 to 1 f/cc; Denmark—1 f/cc

France—0.6 f/cc; Germany—0.5 f/cc; Netherlands—1 f/cc; United Kingdom—2 f/cc

Example is: RCFC REG 0.5 f/cc. The objectives and criteria underlying each of these OEL decisions also vary. The evaluation of occupational exposure limits and determining their relative applicability to the workplace is performed on a case-by-case, by a qualified industrial hygienist.

Eye Protection:

In case of overhead work, wear goggles or safety glasses with side shields to prevent eye contact.

Skin Protection:

Wear gloves, head covering and full body clothing as necessary to prevent skin irritation.

Respiratory Protection:

When effective engineering and administrative controls are insufficient, the use of appropriate respiratory protection, pursuant to the requirements of OSHA 1910.134 and 29 DFR 1926.103 for the particular hazard or airborne concentrations in the work place, it is recommended. For dust concentrations below applicable exposure limit value.

9. PHYSICAL AND CHEMICAL PROPERTIES

Oxidizing properties: None

Chemical family: Aluminosilicate fibers

Chemical Indexes: $\text{Al}_2\text{O}_3 + \text{SiO}_2 > 97\%$
 $\text{Al}_2\text{O}_3 > 45\%$
 $\text{Fe}_2\text{O}_3 < 1.0\%$
 $\text{Na}_2\text{O} + \text{K}_2\text{O} \leq 0.5$

Boiling Point: N/A

Odor: No Odor

Solubility: N/A

Melting Pt.: 3200°F
Vapor Density: N/A

10. STABILITY AND REACTIVITY

Chemical stability: stable under conditions of normal use.

Incompatibility: hydrofluoric acid, and concentrated alkali.

11. TOXICOLOGICAL INFORMATION

Epidemiological studies conducted by institution of human environment protection in China has provided no evidence that there is a direct cause-and effect relationship between cumulative exposure to aluminosilicate fibers and lung cancers or particular pulmonary diseases.

However recent toxicological experiments using physiological exposure method (inhalation) have produced findings of respiratory disease in rodents, Aluminosilicate refractory fiber has found to be a rodent carcinogen under the conditions that the rodents are exposed to high levels of the material (75—115 fibers/cc) on a basis of lifetime duration.

12. ECOLOGICAL INFORMATION

No data is available on adverse effects of the material on the environment.

13. DISPOSAL CONSIDERATIONS

As produced, this material is usually accepted for disposal at most sites licensed for the disposal of industrial waste. Check applicable regulations and waste site policies prior to disposal. Waste should be placed in containers for disposal.

In case of contamination, by other materials classified as hazardous waste, expert guidance should be sought.

14. TRANSPORT INFORMATION

Product should remain in sealed containers during transportation.

15. REGULATORY INFORMATION

CERCLA: the aluminosilicate fibers of this product have an average diameter of 2-4 um and are not considered CERCLA hazardous substances (CERCLA 40 CFR302)

Clean Air Act (CAA): thermal insulation fibers are composed of (RCF) with an average diameter greater than 1 micron, and therefore are not considered hazardous air

pollutants.

Toxic Substances Control Act (TSCA): all substances in this product are listed, as required, on the TSCA chemical inventory.

International Regulations:

Canadian Workplace Hazardous Materials Information System (WHMIS):

No Canadian Workplace Hazardous Materials Information System categories apply to this product.

Canadian Environmental Protection Act (CEPA):

All substances in this product are listed, as required, on the Domestic Substances List (DSL). Chemicals, which are listed on the Non—Domestic Substances list:

16. OTHER INFORMATION

Removal after service: Under sustained and steady high temperature over 1800°F, this material will possibly transform to crystalline silica (ciystobalite) in exposed portions. Prolonged or repeated exposure to respirable crystalline silica dust may lead to lung diseases. IARC has listed crystalline silica in Category 2A a probable carcinogen ("crystalline silica inhaled in the form of quartz or cristobalite from occupational source is carcinogenic to humans" IARC monograph 68, June 1997 p 210—211). The permissible exposure limit(PEL) set by OSHA for respirable cristobalite is 0.05mg/m³. Whenever possible follow section 8 procedures for exposure controls and personal protection.

Abbreviations:

CERCLA: comprehensive environmental response compensation and liability act of 1980

CAS: Chemical abstracts service

F/cc: fibers per cubic centimeter

HMIS: Hazardous Material information system

Mg/m³: Milligrams per cubic meter of air

NIOSH: National institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

PEL: permissible exposure limit

SARA: super amendments and reauthorization act

TSCA: toxic Substances Controls Act

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Nylon Hook & Loop
Common Name(s): Velcro

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Shipped material is not considered hazardous, but operations (e.g., overheating, burning, machining, abrading, or riveting) that can create airborne dust should be avoided.

POTENTIAL HEALTH EFFECTS

Inhalation: Inhalation of dust and vapor from heating above recommended levels can cause irritation to mucous membranes of the nose and throat.

Skin: Dust may cause irritation. Molten material can cause thermal burns.

Eye: Solid or dust particles and thermal fumes may cause irritation or corneal injury.

Ingestion: Not a probable route of entry. Ingestion of product may cause gastrointestinal discomfort.

Carcinogenicity:

| | COMPONENT |
|-------------------|-----------|
| | NTP |
| | IARC |
| | OSHA |
| Polyamide Alloy | No |
| | No |
| | No |
| Caprolactam | No |
| | Yes (4) |
| | No |
| Nylon Hook & Loop | No |

No
No

4: Probably not carcinogenic to humans

Symptoms and Effects of Exposure to Selected Individual Components

CAPROLACTAM

Moderately toxic by ingestion or skin contact. A skin and eye irritant. When heated, could emit toxic fumes of nitrogen oxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredient | CAS No. | % | Weight | OSHA PEL | ACGIH TLV |
|-------------------|----------|-------------|--------|------------------|-------------------------|
| Polyamide Alloy | None | Established | 92 | None Established | None Established |
| Caprolactam | 105-60-2 | | 3 | None Established | 5 mg/m ³ (*) |
| Nylon Hook & Loop | None | Established | 5 | None Established | None Established |

*: inhalable fraction, vapor and aerosol

4. FIRST AID MEASURES

Inhalation: Move to fresh air. Seek medical attention.

Eye Contact: Rinse thoroughly with ample amounts of water for 15 minutes. Seek medical attention.

Skin Contact: Wash thoroughly with soap and water. If molten material falls on skin, do not attempt to remove material; cool immediately with water. Seek medical attention.

Ingestion: Seek medical attention.

5. FIRE FIGHTING MEASURES

This product is inherently flame resistant.

Flashpoint: N/A **LEL:** N/A **UEL:** N/A **Autoignition Temperature:** N/A

Extinguishing Media: Use media suitable for surrounding fire.

Unusual Fire and Explosion Hazards: Toxic vapors can be emitted under fire conditions.

Special Fire Fighting Procedure: Wear self-contained breathing apparatus when

extinguishing. Hazardous decomposition products are generated in fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Product may present a slipping hazard. Sweep up and dispose of according to all federal and state disposal procedures. If dust occurs during machining, abrading or riveting, remove dust by vacuuming or wet-mopping. Do not use compressed air to blow dust from surfaces.

7. HANDLING AND STORAGE

If dust occurs while shipping product, remove dust by vacuuming or wet-mopping. Vacuums used for this purpose should be equipped with HEPA filters. Do not use compressed air to blow dust from surfaces.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation Protection: Any operation which may produce dust or thermal vapors, including cutting, machining, grinding, riveting, or abrading of this product, should be adequately exhausted to prevent inhalation of dust or fumes.

Respiratory Protection: Not required under normal processing conditions. If dusty conditions exist, use a NIOSH-approved respirator if there is a potential for exposure to dust, vapor, or fume exceeding PELs or TLVs. (See 29 CFR 1910.134, OSHA Respiratory Protection Standard.)

Skin Protection: Gloves and are protection should be worn to avoid burns if thermal cutting this product.

Eyes: Wear safety glasses or goggles, as necessary, if dust exposure is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N/A

Vapor Pressure: N/A

Melting Point: >420°F

Vapor Density (air = 1): N/A

pH: N/A

% Volatile: N/A

Specific Gravity: 1.38 g/cc

Evaporation Rate: N/A

Water Solubility: Insoluble Form,

Color and Odor: Solid, black and odorless

10. STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and storage conditions.

Incompatibility (Materials/Conditions to Avoid): Strong mineral acids.

Hazardous Polymerization: Will not polymerize.

Decomposition Products: Avoid exposing to open flame and/or temperatures greater than 300° C for prolonged periods of time. At this temperature, thermal decomposition begins to occur producing such by-products as carbon monoxide ammonia, aliphatic amines, ketones and nitriles, which may be flammable, toxic and/or irritating.

11. TOXICOLOGICAL INFORMATION

Inhalation: Refer to Section 2

Skin: Refer to Section 2

Eye: Refer to Section 2

Ingestion: Refer to Section 2

Acute: None known

Chronic: None known

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

Federal and state law regulates disposal of scrap material or dust as solid waste; must be in accordance with federal and state law. Contact local regulatory agency for guidance.

14. TRANSPORT INFORMATION

Proper Shipping Name: Not regulated

Hazard Class: None

Identification Number: None

Packing Group: N/A

Shipping Label: None

Additional Marking Requirement: None

15. REGULATORY INFORMATION

U.S. TSCA:

All chemicals used in the manufacture of this product are listed on the U.S. Toxic Substances Control Act (TSCA) Inventory

California Proposition 65:

This product does not contain ingredients known to the State of California to cause cancer, birth defects or other reproductive effects.

**SARA Title III – Section 313
Supplier Notification:**

This product does not contain chemicals subject to SARA Title III/CERCLA “reportable quantities” (RQs) and/or “threshold planning quantities” (TPQs) and/or are classified as “Toxic Chemicals” under the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372.

RCRA Hazardous Waste Code: Not Available

CERCLA Hazardous Substances: Not Available

OSHA: Not Available

WHMIS Classification: Not Available

16. OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Inconel Mesh
Common Name(s): Inconel - sheet, foil, rod, wire, pellets, target

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire, exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Not classified as hazardous

GHS Label Elements:

Signal Word: N/A

Hazard Statements: N/A

Precautionary Statements: N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredient: | CAS#: | %: | EC#: |
|--------------------|--------------|-----------|-------------|
| Nickel | 7440-02-0 | 50-72 | 231-111-4 |
| Chromium | 7440-47-3 | 14-23 | 231-157-5 |
| Iron | 7439-89-6 | 5-22 | 231-096-4 |
| Molybdenum | 7439-98-7 | 2-10 | 231-107-2 |
| Niobium | 7440-03-1 | 3-6 | 231-113-5 |
| Cobalt | 7440-48-4 | 1 | 231-158-0 |
| Manganese | 7439-96-5 | <1 | 231-105-1 |

4. FIRST AID MEASURES

General Measures: Under normal handling and use, exposure to solid forms of this material present few health hazards. Subsequent operations such as grinding, melting or welding may produce potentially hazardous dust or fumes, which can be inhaled or come in contact with the skin or eyes.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, brush material off skin, wash affected area with

soap and water. Seek medical attention if symptoms persist.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

Most Important Symptoms/Effects, Acute and Delayed: May cause irritation. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other relevant information available.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use suitable extinguishing media for surrounding material and type of fire.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Material: This product does not present fire or explosion hazards as shipped. Small chips, fine turnings and dust from processing may be ignitable. May emit metal oxide fumes under fire conditions.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing when necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Avoid dust formation. Avoid contact with skin and eyes. Avoid breathing dust or fume.

Methods and Materials for Containment and Cleaning Up: Sweep or scoop up. Place in a closed container for further handling and disposal. Scrap can be collected for recycling.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid creating dust. Provide adequate ventilation if dusts are created. See section 8 for information on personal protection equipment.

Conditions for Safe Storage: Store in a sealed container. Store in a cool, dry area. See section 10 for more information on incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| Exposure Limits: | OSHA/PEL: | ACGIH/TLV: |
|------------------|---|--|
| Nickel | 1 mg/m ³ | 1.5 mg/m ³ |
| Chromium | 1 mg/m ³ | 0.5 mg/m ³ |
| Iron | No exposure limit established | No exposure limit established |
| Molybdenum | 15 mg/m ³ (insoluble compounds, total dust) | 10 mg/m ³ (insoluble (insoluble compounds, inhalable) |
| Niobium | No exposure limit established | No exposure limit established |
| Cobalt | 0.1 mg/m ³ | 0.02 mg/m ³ |
| Manganese | 5 mg/m ³ | 0.2 mg/m ³ |

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

Respiratory Protection: If permissible levels are exceeded, use NIOSH approved dust respirator.

Eye Protection: Safety glasses

Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Solid in various forms

Color: Silver-gray metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: 1400°C

Boiling Point: No data

Flash Point: N/A

Evaporation Rate: N/A

Flammability: No data

Upper Flammable Limit: No data

Lower Flammable Limit: No data

Vapor Pressure: No data

Vapor Density: N/A

Relative Density (Specific Gravity): 8-9 g/cc

Solubility in H₂O: Insoluble

Partition Coefficient (n-octanol/water): Not determined

Autoignition Temperature: No data

Decomposition Temperature: No data

Viscosity: N/A

10. STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: No data

Conditions to Avoid: Avoid creating or accumulating fines or dusts.

Incompatible Materials: Acids, oxidizers.

Hazardous Decomposition Products: Metal oxide fume.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.

Symptoms of Exposure: Fines/dusts may irritate skin and eyes.

Acute and Chronic Effects:

Nickel: The most common harmful health effect of metallic nickel in humans is an allergic skin reaction in those who are sensitive to nickel. Although nickel compounds are known human carcinogens, the evidence suggests that the relatively insoluble metallic nickel is less likely to present a carcinogenic hazard than are the nickel compounds that tend to release proportionately more nickel ion.

Chromium: Although much is known about the health effects of chromium compounds, the health effects of chromium metal, Cr(0), is not well studied. Due to insolubility most elements in their metallic state are not considered to be serious health hazards.

Iron: Irritating to the respiratory tract, iron compounds may cause pulmonary fibrosis if dusts are inhaled. Inhalation of large amounts may cause iron pneumoconiosis. Chronic inhalation of finely divided powder may cause chronic iron poisoning and pathological deposition of iron in the body tissue. Ingestion may cause vomiting, diarrhea, pink urine, black stool, and liver damage. Iron compounds may also cause damage to the kidneys.

Molybdenum: No data

Tungsten: No data

Niobium: No data

Cobalt: Acute exposure to cobalt metal dusts or fumes is characterized by irritation to the eyes, and to a lesser extent, irritation to the skin. Chronic exposure to cobalt metal dust or fumes may cause respiratory and dermatologic signs and symptoms. Chronic exposure to cobalt by inhalation in humans results in effects on the respiratory system, such as respiratory irritation, wheezing, asthma, decreased lung function, pneumonia, and fibrosis.

Manganese: Chronic inhalation exposure of humans to high levels of manganese may result in a syndrome called manganism which typically begins with feelings of weakness and lethargy and progresses to other symptoms such as gait disturbances, clumsiness, tremors, speech disturbances, a mask-like facial expression and psychological disturbances. Manganese is an essential micronutrient in humans.

Acute Toxicity: No data

Carcinogenicity: Nickel: NTP: R - reasonably anticipated to be a human carcinogen

IARC: 2B - possibly carcinogenic to humans

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: No further relevant information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

DOT/ADR/IATA/IMDG Regulations: Not regulated

UN Number: N/A

UN Proper Shipping Name: N/A

Transport Hazard Class: N/A

Packing Group: N/A

Marine Pollutant: No

Special Precautions: N/A

15. REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): N/A

Canada WHMIS Classification (CPR, SOR/88-66): N/A

HMIS Ratings: Health: 0

Flammability: 0

Reactivity: 0

NFPA Ratings: Health: 0

Flammability: 0

Reactivity: 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16. OTHER INFORMATION

Disclaimer:

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Black Nomex Thread
Common Name(s): Nomex Aramid Fire
Retardant Thread, Nomex Sewing Thread

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Emergency Overview

The hazards of this product are associated mainly with its processing. Dust may form explosive mixture in air. High concentrations of dust can irritate eyes, nose and respiratory system and cause coughing and sneezing. Processing meta-aramid products can release Dimethyl Acetamide (DMAC). Hazards related to DMAC include: May be harmful by inhalation (after often repeated exposure). May be harmful in contact with skin (after often repeated exposure). Liver and kidney injuries may occur. Processing para-aramid products can release respirable dust and respirable fibre particulate. Prolonged inhalation of respirable dust and respirable fibre particulate at high concentrations can cause lung damage. Continual rubbing of fibre particulates and dust on the skin can cause a transitory, mild irritation with redness or itching.

Potential Health Effects

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Concentration |
|---|---------|---------------|
| Meta-aramid fiber or meta-aramid fiber blended with para-aramid, antistatic or other synthetic fibers | | 100 % |

Exposure limits may be applicable for the following:

| | |
|-----------------------|------------|
| Meta-aramid | 25765-47-3 |
| Para-aramid | 26125-61-1 |
| Synthetic fibres | |
| N,N-Dimethylacetamide | 127-19-5 |

4. FIRST AID MEASURES

General advice: No hazards, which require special first aid measures. If symptoms persist, call a physician. If irritation occurs, flush area thoroughly with water.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash point: not applicable

Thermal decomposition: > 300 °C (> 572 °F)

Fire and Explosion Hazard: Hazardous decomposition products formed under fire conditions.

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Firefighting Instructions: Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel): None.

Spill Cleanup: Avoid dust formation. Clean up dusts and fibres with high efficiency particulate air (HEPA) filtered vacuum equipment, or by wet cleaning.

Accidental Release Measures: Do not let product enter drains.

7. HANDLING AND STORAGE

Handling (Personnel): Avoid dust formation. Do not touch moving threadlines. Entanglement with this fibre can severely cut or even sever fingers. Avoid breathing dust or vapor.

Storage: Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Ensure adequate ventilation. Recirculated air should be filtered to remove respirable dust. Provide for appropriate exhaust ventilation and dust collection at machinery. Static charges can cause explosions in solvent and dust laden atmospheres.

Provide grounding of equipment to prevent static build-up.

Personal protective equipment

Eye protection: Safety glasses with side-shields
Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Exposure Guidelines

Exposure Limit Values

Meta-aramid

| | | | | | |
|-------|----------|----------------------|-------|-----|------------------|
| AEL * | (DUPONT) | 10 mg/m ³ | 8 hr. | TWA | Total dust. |
| AEL * | (DUPONT) | 5 mg/m ³ | 8 hr. | TWA | Respirable dust. |

Para-aramid

| | | | | | |
|-------|----------|--------------------------|------------|-----|--|
| AEL * | (DUPONT) | 2 fibers/cm ³ | 8 & 12 hr. | TWA | Respirable fibers. |
| AEL * | (DUPONT) | 5 mg/m ³ | 8 & 12 hr. | TWA | Non-fibrous particulate and/or nonrespirable fibres. |

N,N-Dimethylacetamide

| | | | | | |
|---------------------------|----------|--------|----------------------|-----------|----------|
| PEL | (OSHA) | 10 ppm | 35 mg/m ³ | 8 hr. | TWA |
| Skin designation applies. | | | | | |
| Skin designation applies. | | | | | |
| TLV | (ACGIH) | 10 ppm | | | TWA |
| AEL * | (DUPONT) | 10 ppm | | 8 & 12 hr | TWA Skin |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits, which are lower than, the AEL are in effect, such limits shall take precedence.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Nonwoven fabric, woven fabric, fibres, yarn

Color: Black, pigmented

Odor: None

Melting point/range: N/A

Specific Gravity: 1.38

Water solubility: Insoluble

10. STABILITY AND REACTIVITY

Conditions to avoid: Temperature > 200 °C (> 392 °F).
Heating can release hazardous gases.

Incompatibility: Strong acids and strong bases

Decomposition: **Decomposition temperature:** > 300 °C (> 572 °F).
Hazardous decomposition products Carbon monoxide, nitrogen oxides (NO_x), Hydrogen cyanide (hydrocyanic acid).

11. TOXICOLOGICAL INFORMATION

Skin sensitization: Did not cause sensitization on laboratory animals.
Negative in human patch test.

Meta-aramid

Oral ALD: > 11,000 mg/kg, rat
Inhalation ALC: > 238 mg/m³, rat
lung effects
Skin irritation: non-irritant
Carcinogenicity: Did not show carcinogenic effects in animal experiments.

Para-aramid

Oral ALD: > 7,500 mg/kg, rat
Skin irritation: Species: rabbit, No skin irritation
non-irritant
Eye irritation: non-irritant
Repeated dose toxicity: Inhalation, rat
lung effects
Carcinogenicity: Animal testing did not show any carcinogenic effects.
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show
mutagenic effects.

N,N-Dimethylacetamide

Dermal LD50: 2,240 - 9,600 mg/kg, animals (unspecified species)
Oral LD50: 3,000 - 6,000 mg/kg, rat
Inhalation 1 h LC50: 8.81 mg/l female, rat
Value applicable only if respirable particles are formed.
Inhalation 4 h LC50: 2.2 mg/l female, rat
Skin irritation: Species: rabbit
Mild skin irritation
Eye irritation: Species: rabbit
irritant

Repeated dose toxicity: **Dermal**

Central nervous system depression, Liver effects, Skin effects

Oral

Pathologic changes, Stomach, Testes, Liver, Kidney, Abnormal decrease in number of red blood cells (anaemia)

Inhalation

Kidney effects, Liver effects, Retinal damage

Carcinogenicity:

Did not show carcinogenic effects in animal experiments.

Mutagenicity:

Did not cause genetic damage in cultured bacterial cells. Did not cause genetic damage in cultured mammalian cells. Evidence suggests this substance does not cause genetic damage in animals.

Toxicity to reproduction:

Animal testing showed no reproductive toxicity.

Teratogenicity:

Animal testing showed effects on embryo-foetal development at levels equal to or above those causing maternal toxicity.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Para-aramid: This product has no known eco-toxicological effects.

N,N-Dimethylacetamide 96 h LC50: Fathead minnow 1,500 mg/l

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Can be landfilled or incinerated, when in compliance with local regulations. Do not flush into surface water or sanitary sewer system.

14. TRANSPORT INFORMATION

None special required.

15. REGULATORY INFORMATION

TSCA Status: Product is an article as defined at 40CFR720.3(c) and is not subject to TSCA Inventory requirements.

SARA 313 Regulated Chemical(s): SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65: Chemicals known to State of California to cause cancer, birth defects or any other harm: none known

16. OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Green Nomex Thread
Common Name(s): Nomex Aramid Fire
Retardant Thread, Nomex Sewing Thread

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Emergency Overview

The hazards of this product are associated mainly with its processing. Dust may form explosive mixture in air. High concentrations of dust can irritate eyes, nose and respiratory system and cause coughing and sneezing. Processing meta-aramid products can release Dimethyl Acetamide (DMAC). Hazards related to DMAC include: May be harmful by inhalation (after often repeated exposure). May be harmful in contact with skin (after often repeated exposure). Liver and kidney injuries may occur. Processing para-aramid products can release respirable dust and respirable fibre particulate. Prolonged inhalation of respirable dust and respirable fibre particulate at high concentrations can cause lung damage. Continual rubbing of fibre particulates and dust on the skin can cause a transitory, mild irritation with redness or itching.

Potential Health Effects

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Concentration |
|---|---------|---------------|
| Meta-aramid fiber or meta-aramid fiber blended with para-aramid, antistatic or other synthetic fibers | | 100 % |

Exposure limits may be applicable for the following:

| | |
|-----------------------|------------|
| Meta-aramid | 25765-47-3 |
| Para-aramid | 26125-61-1 |
| Synthetic fibres | |
| N,N-Dimethylacetamide | 127-19-5 |

4. FIRST AID MEASURES

General advice: No hazards, which require special first aid measures. If symptoms persist, call a physician. If irritation occurs, flush area thoroughly with water.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash point: not applicable

Thermal decomposition: > 300 °C (> 572 °F)

Fire and Explosion Hazard: Hazardous decomposition products formed under fire conditions.

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Firefighting Instructions: Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel): None.

Spill Cleanup: Avoid dust formation. Clean up dusts and fibres with high efficiency particulate air (HEPA) filtered vacuum equipment, or by wet cleaning.

Accidental Release Measures: Do not let product enter drains.

7. HANDLING AND STORAGE

Handling (Personnel): Avoid dust formation. Do not touch moving threadlines. Entanglement with this fibre can severely cut or even sever fingers. Avoid breathing dust or vapor.

Storage: Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Ensure adequate ventilation. Recirculated air should be filtered to remove respirable dust. Provide for appropriate exhaust ventilation and dust collection at machinery. Static charges can cause explosions in solvent and dust laden atmospheres.

Provide grounding of equipment to prevent static build-up.

Personal protective equipment

Eye protection: Safety glasses with side-shields

Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Exposure Guidelines

Exposure Limit Values

Meta-aramid

| | | | | | |
|-------|----------|----------------------|-------|-----|------------------|
| AEL * | (DUPONT) | 10 mg/m ³ | 8 hr. | TWA | Total dust. |
| AEL * | (DUPONT) | 5 mg/m ³ | 8 hr. | TWA | Respirable dust. |

Para-aramid

| | | | | | |
|-------|----------|--------------------------|------------|-----|--|
| AEL * | (DUPONT) | 2 fibers/cm ³ | 8 & 12 hr. | TWA | Respirable fibers. |
| AEL * | (DUPONT) | 5 mg/m ³ | 8 & 12 hr. | TWA | Non-fibrous particulate and/or nonrespirable fibres. |

N,N-Dimethylacetamide

| | | | | | | |
|-------|----------|--------|----------------------|-------|------|---------------------------|
| PEL | (OSHA) | 10 ppm | 35 mg/m ³ | 8 hr. | TWA | Skin designation applies. |
| | | | | | | Skin designation applies. |
| TLV | (ACGIH) | 10 ppm | | | TWA | |
| AEL * | (DUPONT) | 10 ppm | 8 & 12 hr | TWA | Skin | |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits, which are lower than, the AEL are in effect, such limits shall take precedence.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Nonwoven fabric, woven fabric, fibres, yarn

Color: Green, pigmented

Odor: None

Melting point/range: N/A

Specific Gravity: 1.38

Water solubility: Insoluble

10. STABILITY AND REACTIVITY

Conditions to avoid: Temperature > 200 °C (> 392 °F).
Heating can release hazardous gases.

Incompatibility: Strong acids and strong bases

Decomposition: **Decomposition temperature:** > 300 °C (> 572 °F).
Hazardous decomposition products Carbon monoxide, nitrogen oxides (NO_x), Hydrogen cyanide (hydrocyanic acid).

11. TOXICOLOGICAL INFORMATION

Skin sensitization: Did not cause sensitization on laboratory animals.
Negative in human patch test.

Meta-aramid

Oral ALD: > 11,000 mg/kg, rat
Inhalation ALC: > 238 mg/m³, rat
lung effects
Skin irritation: non-irritant
Carcinogenicity: Did not show carcinogenic effects in animal experiments.

Para-aramid

Oral ALD: > 7,500 mg/kg, rat
Skin irritation: Species: rabbit, No skin irritation
non-irritant
Eye irritation: non-irritant
Repeated dose toxicity: Inhalation, rat
lung effects
Carcinogenicity: Animal testing did not show any carcinogenic effects.
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show
mutagenic effects.

N,N-Dimethylacetamide

Dermal LD50: 2,240 - 9,600 mg/kg, animals (unspecified species)
Oral LD50: 3,000 - 6,000 mg/kg, rat
Inhalation 1 h LC50: 8.81 mg/l female, rat
Value applicable only if respirable particles are formed.
Inhalation 4 h LC50: 2.2 mg/l female, rat
Skin irritation: Species: rabbit
Mild skin irritation
Eye irritation: Species: rabbit
irritant

Repeated dose toxicity: **Dermal**

Central nervous system depression, Liver effects, Skin effects

Oral

Pathologic changes, Stomach, Testes, Liver, Kidney, Abnormal decrease in number of red blood cells (anaemia)

Inhalation

Kidney effects, Liver effects, Retinal damage

Carcinogenicity:

Did not show carcinogenic effects in animal experiments.

Mutagenicity:

Did not cause genetic damage in cultured bacterial cells. Did not cause genetic damage in cultured mammalian cells. Evidence suggests this substance does not cause genetic damage in animals.

Toxicity to reproduction:

Animal testing showed no reproductive toxicity.

Teratogenicity:

Animal testing showed effects on embryo-foetal development at levels equal to or above those causing maternal toxicity.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Para-aramid: This product has no known eco-toxicological effects.

N,N-Dimethylacetamide 96 h LC50: Fathead minnow 1,500 mg/l

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Can be landfilled or incinerated, when in compliance with local regulations. Do not flush into surface water or sanitary sewer system.

14. TRANSPORT INFORMATION

None special required.

15. REGULATORY INFORMATION

TSCA Status: Product is an article as defined at 40CFR720.3(c) and is not subject to TSCA Inventory requirements.

SARA 313 Regulated Chemical(s): SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65: Chemicals known to State of California to cause cancer, birth defects or any other harm: none known

16. OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Red Nomex Thread
Common Name(s): Nomex Aramid Fire
Retardant Thread, Nomex Sewing Thread

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Emergency Overview

The hazards of this product are associated mainly with its processing. Dust may form explosive mixture in air. High concentrations of dust can irritate eyes, nose and respiratory system and cause coughing and sneezing. Processing meta-aramid products can release Dimethyl Acetamide (DMAC). Hazards related to DMAC include: May be harmful by inhalation (after often repeated exposure). May be harmful in contact with skin (after often repeated exposure). Liver and kidney injuries may occur. Processing para-aramid products can release respirable dust and respirable fibre particulate. Prolonged inhalation of respirable dust and respirable fibre particulate at high concentrations can cause lung damage. Continual rubbing of fibre particulates and dust on the skin can cause a transitory, mild irritation with redness or itching.

Potential Health Effects

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Concentration |
|---|---------|---------------|
| Meta-aramid fiber or meta-aramid fiber blended with para-aramid, antistatic or other synthetic fibers | | 100 % |

Exposure limits may be applicable for the following:

| | |
|-----------------------|------------|
| Meta-aramid | 25765-47-3 |
| Para-aramid | 26125-61-1 |
| Synthetic fibres | |
| N,N-Dimethylacetamide | 127-19-5 |

4. FIRST AID MEASURES

General advice: No hazards, which require special first aid measures. If symptoms persist, call a physician. If irritation occurs, flush area thoroughly with water.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash point: not applicable

Thermal decomposition: > 300 °C (> 572 °F)

Fire and Explosion Hazard: Hazardous decomposition products formed under fire conditions.

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Firefighting Instructions: Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel): None.

Spill Cleanup: Avoid dust formation. Clean up dusts and fibres with high efficiency particulate air (HEPA) filtered vacuum equipment, or by wet cleaning.

Accidental Release Measures: Do not let product enter drains.

7. HANDLING AND STORAGE

Handling (Personnel): Avoid dust formation. Do not touch moving threadlines. Entanglement with this fibre can severely cut or even sever fingers. Avoid breathing dust or vapor.

Storage: Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Ensure adequate ventilation. Recirculated air should be filtered to remove respirable dust. Provide for appropriate exhaust ventilation and dust collection at machinery. Static charges can cause explosions in solvent and dust laden atmospheres.

Provide grounding of equipment to prevent static build-up.

Personal protective equipment

Eye protection: Safety glasses with side-shields

Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Exposure Guidelines

Exposure Limit Values

Meta-aramid

| | | | | | |
|-------|----------|----------------------|-------|-----|------------------|
| AEL * | (DUPONT) | 10 mg/m ³ | 8 hr. | TWA | Total dust. |
| AEL * | (DUPONT) | 5 mg/m ³ | 8 hr. | TWA | Respirable dust. |

Para-aramid

| | | | | | |
|-------|----------|--------------------------|------------|-----|--|
| AEL * | (DUPONT) | 2 fibers/cm ³ | 8 & 12 hr. | TWA | Respirable fibers. |
| AEL * | (DUPONT) | 5 mg/m ³ | 8 & 12 hr. | TWA | Non-fibrous particulate and/or nonrespirable fibres. |

N,N-Dimethylacetamide

| | | | | | | |
|-------|----------|--------|----------------------|-------|------|---------------------------|
| PEL | (OSHA) | 10 ppm | 35 mg/m ³ | 8 hr. | TWA | Skin designation applies. |
| | | | | | | Skin designation applies. |
| TLV | (ACGIH) | 10 ppm | | | TWA | |
| AEL * | (DUPONT) | 10 ppm | 8 & 12 hr | TWA | Skin | |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits, which are lower than, the AEL are in effect, such limits shall take precedence.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Nonwoven fabric, woven fabric, fibres, yarn

Color: Red, pigmented

Odor: None

Melting point/range: N/A

Specific Gravity: 1.38

Water solubility: Insoluble

10. STABILITY AND REACTIVITY

Conditions to avoid: Temperature > 200 °C (> 392 °F).
Heating can release hazardous gases.

Incompatibility: Strong acids and strong bases

Decomposition: **Decomposition temperature:** > 300 °C (> 572 °F).
Hazardous decomposition products Carbon monoxide, nitrogen oxides (NO_x), Hydrogen cyanide (hydrocyanic acid).

11. TOXICOLOGICAL INFORMATION

Skin sensitization: Did not cause sensitization on laboratory animals.
Negative in human patch test.

Meta-aramid

Oral ALD: > 11,000 mg/kg, rat
Inhalation ALC: > 238 mg/m³, rat
lung effects
Skin irritation: non-irritant
Carcinogenicity: Did not show carcinogenic effects in animal experiments.

Para-aramid

Oral ALD: > 7,500 mg/kg, rat
Skin irritation: Species: rabbit, No skin irritation
non-irritant
Eye irritation: non-irritant
Repeated dose toxicity: Inhalation, rat
lung effects
Carcinogenicity: Animal testing did not show any carcinogenic effects.
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show
mutagenic effects.

N,N-Dimethylacetamide

Dermal LD50: 2,240 - 9,600 mg/kg, animals (unspecified species)
Oral LD50: 3,000 - 6,000 mg/kg, rat
Inhalation 1 h LC50: 8.81 mg/l female, rat
Value applicable only if respirable particles are formed.
Inhalation 4 h LC50: 2.2 mg/l female, rat
Skin irritation: Species: rabbit
Mild skin irritation
Eye irritation: Species: rabbit
irritant

Repeated dose toxicity: **Dermal**

Central nervous system depression, Liver effects, Skin effects

Oral

Pathologic changes, Stomach, Testes, Liver, Kidney, Abnormal decrease in number of red blood cells (anaemia)

Inhalation

Kidney effects, Liver effects, Retinal damage

Carcinogenicity:

Did not show carcinogenic effects in animal experiments.

Mutagenicity:

Did not cause genetic damage in cultured bacterial cells. Did not cause genetic damage in cultured mammalian cells. Evidence suggests this substance does not cause genetic damage in animals.

Toxicity to reproduction:

Animal testing showed no reproductive toxicity.

Teratogenicity:

Animal testing showed effects on embryo-foetal development at levels equal to or above those causing maternal toxicity.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Para-aramid: This product has no known eco-toxicological effects.

N,N-Dimethylacetamide 96 h LC50: Fathead minnow 1,500 mg/l

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Can be landfilled or incinerated, when in compliance with local regulations. Do not flush into surface water or sanitary sewer system.

14. TRANSPORT INFORMATION

None special required.

15. REGULATORY INFORMATION

TSCA Status: Product is an article as defined at 40CFR720.3(c) and is not subject to TSCA Inventory requirements.

SARA 313 Regulated Chemical(s): SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65: Chemicals known to State of California to cause cancer, birth defects or any other harm: none known

16. OTHER INFORMATION

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

Product Identification

Product Name: Black Polypropylene
Webbing

Common Name(s): Polypropylene or
Polyethylene Webbing, Polypropylene
Web (Polyolefin)

2. HAZARDS IDENTIFICATION

Appearance: Black

Eye Contact: Product fines can cause mechanical irritation.

Skin Contact: Product is unlikely to cause irritation.

Inhalation: Product fines may cause mechanical irritation.

Ingestion: Product is practically non-toxic.

Signs and Symptoms: Irritation as noted above.

Carcinogenicity:

NTP: No

IARC Monographs: No

OSHA Regulated: No

3. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Component</u> | <u>Polypropylene</u> | <u>Carbon Black</u> | <u>Additives</u> |
|------------------|----------------------|---------------------|------------------|
| CAS No | 9003-07-0 | 1333-86-4- | - |
| Composition (%) | Min 98% | Max 1.5% | Max 0.5% |

4. FIRST AID MEASURES

Eye Contact: Flush eyes with water if irritation occurs.

Skin Contact: Flush skin with plenty of soap and water for at least 15 minutes, while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. Allow the victim to rinse his mouth then to drink 2-4 cupfuls of water and seek medical advice.

Inhalation: Remove from exposure to fresh air immediately.

Notes to physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flash Point And Method: Not Applicable

Extinguishing Media: Use water fog, foam, dry chemical or CO2

Auto Ignition Temperature: Not Applicable

Special Firefighting Procedures And Precautions: Material will not burn unless preheated. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots). Cool fire exposed containers with water.

Unusual Fire And Explosion Hazards: Treat as a solid that can burn. Molded parts generally burn slowly with a low smoke density and flaming drips. Under certain conditions can burn with a high smoke density.

6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment

Spill/Leaks: Clean up spills immediately. Sweep up, and then place into a suitable container for disposal.

7. HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Storage: Store in a cool, dry place. Keep container closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

Personal Protective Equipment:

Eye: Wear safety glasses and chemical goggles if splashing is possible.

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Use approved supplier air respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Black

Odor: Essentially Odorless

pH: Not Applicable

Solubility: (In Water) Insoluble;

(Other Solvent) Soluble In Tetrahydronaphthalene, Tetrachloroethane Etc.

Viscosity: Not Applicable

Melt Point: 130 ~ 170°C

Boiling Point: Not Applicable

Decomposition Temperature: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density (Air=1): Not Applicable

Evaporation Rate: Not Applicable

Specific Gravity (H₂O=1): 0.89 ~ 0.91

Molecular Weight: >10,000

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperature and pressure

Conditions To Avoid: Incompatible materials, strong oxidants

Incompatibilities With Other Materials: Strong-oxidizing agents

Hazardous Decomposition Product: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

11. TOXICOLOGICAL INFORMATION

LD50: 3200 mg/kg Mouse-in throat

Inhalation: Product fines may cause mechanical irritation.

Skin Contact: Product is unlikely to cause irritation.

Eye Contact: Product fines can cause mechanical irritation.

Ingestion: Product is practically non-toxic.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not applicable

Spill Or Leak Procedures: Shovel and sweep up or use industrial vacuum cleaner. Avoid generation dust clouds. Put into containers for reclaiming or disposal.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Place contaminated material in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

Environmental Hazards: Not applicable

14. TRANSPORT INFORMATION

Not applicable

15. REGULATORY INFORMATION

Label Warning: Caution: May cause respiratory irritation during thermal processing operations.

DOT Hazard Classification: Not regulated **DOT Proper Shipping Description:** None

EPA Hazardous Substance and Reportable Quantity: Not listed

RCRA Hazardous Waste: Not listed

SARA Title III Section 302 Extremely Hazardous Substances: None present

SARA Title III Section 313 Toxic Chemicals: None present

16. OTHER INFORMATION

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Green PTFE Coated
Fiberglass Cloth

Common Name(s): PTFE Coated Fiber
Glass

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Route of Entry: This material may enter the body through inhalation of nuisance dust.

Target Organs: Respiratory system

Inhalation: Sore, raspy throat. Inhaling fumes of the decomposition products of polytetrafluoroethylene can induce temporary influenza-like symptoms. These symptoms include fever, cough and malaise.

Skin Contact: Redness and possible rash; itching

Eye Contact: Itching and redness

Ingestion: N/A

NFPA: Health = 3, Fire = 0, Reactivity = 0

HMIS III: H1/F0/PH0

GHS Signal Word:

WARNING

GHS Classifications:

Health, Skin corrosion/irritation, 2

GHS Phrases:

H315 - Causes skin irritation

GHS Precautionary Statements:

P264 - Wash _ thoroughly after handling.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Fibrous Glass (CAS 65997-17-3) (65%-75%)

Exposure Limits: OSHA PEL 15 mg/m³ (total), 5 mg/m³ (respirable). ACGIH TLV 1 f/cc

Polytetrafluoroethylene (CAS 9002-84-0) (25%-35%)

4. FIRST AID MEASURES

Inhalation: Remove person to fresh air. If condition persists, seek medical attention.

Skin Contact: Rinse with copious quantities of cool water. If rash or itching persists, seek medical attention.

Eye Contact: Rinse with water. Do not rub eyes. Seek medical attention.

Ingestion: Not applicable.

5. FIRE FIGHTING MEASURES

Flash Point (Method Used): >250 °C by TOC

Flammable Limits

LEL: N/A

UEL: N/A

Extinguishing Media: Water, carbon dioxide, or dry chemical

Special Fire Fighting Procedures: Thermal decomposition of fiber coating may produce an irritating mixture of smoke and fumes.

Unusual Fire and Explosion Hazards: None

6. ACCIDENTAL RELEASE MEASURES

Material is a solid in roll form. If accidentally released, rewind material back onto roll.

7. HANDLING AND STORAGE

Handling Precautions: Use adequate material handling equipment.

Storage Requirements: Store in dry place. Use may be at temperature extremes based on product data, but storage should be at ambient temperature.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local exhaust; dust collection

Personal Protective Equip: HMIS PP, B | Safety Glasses, Gloves
Safety glasses; cotton gloves; long sleeve clothing

Wash thoroughly with soap and water after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Green Face with Tan Back

Physical State: Solid

Spec Grav. /Density: 1.6

Boiling Point: N/A

Vapor Pressure: N/A

pH: N/A

Odor: No Odor

Solubility: Negligible

Freezing/Melting Pt.: > 400 °F

Vapor Density: N/A

10. STABILITY AND REACTIVITY

Stability: Material is stable.

Conditions to Avoid: None known.

Materials to Avoid: Strong-oxidizing agents.

Hazardous Decomposition: Carbon monoxide; carbon dioxide; hydrogen fluoride

Hazardous Polymerization: Will Not Occur.

11. TOXICOLOGICAL INFORMATION

Direct contact with fiberglass materials or exposure to airborne fiberglass dust may irritate the skin, eyes, nose and throat. Fiberglass can cause itching due to mechanical irritation from the fibers. This is not an allergic reaction to the material. Breathing fibers may irritate the airways resulting in coughing and a scratchy throat. Some people are sensitive to the fibers, while others are not.

12. ECOLOGICAL INFORMATION

No known hazards except for airborne fibers caused by nuisance dust. 10 milligrams per cubic meter for fiber diameters less than 7 microns.

13. DISPOSAL CONSIDERATIONS

Incineration preferred in a federal, state, or local approved facility.

14. TRANSPORT INFORMATION

None special required.

15. REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

*Polytetrafluoroethylene (9002840 n/a%) PA

16. OTHER INFORMATION

Disclaimer:

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: PTFE Coated Fiberglass
Draw Cord
Common Name(s): PTFE Coated Glass
Draw Cord

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Hazard Classification: NA

Signal Word: N/A

Hazard Statement: N/A

Pictograms: N/A

Precautionary Statement: Inhalation of the thermal decomposition products, arising from high temperature or fire, is hazardous to health. Contamination of tobacco products must be avoided.

Potential Hazards:

Skin: Cutting or abrading material may produce small amounts of glass fiber particulates, which may cause skin irritation.

Eyes: Not a likely route of entry.

Inhalation: Inhalation of fumes from burning or heating above 300 C can cause polymer fume fever.

Ingestion: Not a likely route of entry. Ingestion can cause gastrointestinal tract irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredient Name | CAS # | Weight % |
|----------------------------------|------------|----------|
| Polytetrafluoroethylene (PTFE) | 9002-84-0 | 10-20% |
| Glass fiber | 65997-17-3 | 80-90% |
| Various High Temperature Pigment | | 0- 3% |

4. FIRST AID MEASURES

Skin: Not normally considered hazardous, if irritation occurs wash thoroughly with soap and water, if irritation persists consult a physician.

Eyes: Not normally considered hazardous, if irritation occurs flush with water, if irritation persists consult a physician.

Inhalation: N/A for material as supplied at room temperature and used as intended. Processing at high temperature may generate fumes, which can cause flu-like symptoms. Remove to fresh air, consult physician if severe.

Ingestion: If swallowed consult a physician. Do not induce vomiting unless instructed to do so by a physician.

Most Important Symptoms and Effects: Polymer Flu Fever. Inhalation of the thermal decomposition products, arising from high temperature or fire will cause flu like symptoms. Symptoms may be delayed several hours.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use media appropriate to primary source of fire.

Specific Hazards During Fire-Fighting: Material is incombustible but if other fuel is present decomposition products will burn at about 1250F, producing toxic and corrosive gaseous products.

Special Protective Equipment: Wear self-contained breathing apparatus and protective suit. Wear neoprene gloves during cleaning up work after a fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: N/A Solid material

Environmental Precautions: N/A Solid Material

Methods & Materials for Cleanup: Collect with hands, broom, shovel, and/or vacuum.

7. HANDLING AND STORAGE

Store and handle using good warehouse practices. Avoid contamination of tobacco products.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: NA

Personal Protective Equipment: Use appropriate NIOSH-approved respirator in the presence of dust or decomposition fumes

Eye and Face: Use of safety glasses is recommended

Hands, Arm, and Body: Material is small in diameter yet relatively strong, and can

produce cuts, particularly if being rewound or transferred at a high speed.

Exposure Guidelines:

| Ingredient Name | ACGIH TLV mg/m3 | OSHA PEL mg/m3 |
|---------------------------------------|--|--|
| Polytetrafluoroethylene (PNOC) | | |
| Particulates Not Otherwise Classified | 15 (total dust) 5 (respirable fraction) | 10 (inhalable fraction) 3 (respirable fraction) |
| Fibrous glass dust | 15 (total dust) 5 (respirable dust) | 5 (inhalable fraction) 3 (PNOC) |

Hygiene Measures: Wash hands immediately after handling, do not contaminate tobacco products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Braided cord of various colors

Upper / Lower Flammability or Explosive Limits: N/A

Odor: None

Vapor Pressure: N/A

Odor Threshold: N/A

Vapor Density: N/A

pH: N/A

Relative Density: N/A

Melting Point / Freezing Point: N/A

Solubility: Insoluble

Initial Boiling Point & Boiling Range: N/A

Flash Point: N/A

Evaporation Rate: N/A

Decomposition Temperature: 300 C

Viscosity: N/A

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal ambient temperature and pressure

Chemical Stability: Stable

Incompatibilities: Strong oxidizers, acids, and bases.

Hazardous Decomposition Products: Thermal decomposition may produce toxic and corrosive gaseous products.

Hazardous Polymerizations: Hazardous polymerization will not occur

11. TOXICOLOGICAL INFORMATION

Immediate (acute) Effects: No acute effects have been identified.

Delayed Effects: No delayed or chronic effects have been identified.

Other Data: NA

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Material as supplied is not a hazardous waste according to RCRA.

Landfill according to current federal, state, and local regulations, or incinerate in a high-temperature incinerator designed to burn fluoride-containing materials. Processing, use or contamination may make this information inaccurate or incomplete.

14. TRANSPORT INFORMATION

US DOT Hazard Class: NA

US DOT ID Number: NA

15. REGULATORY INFORMATION

TSCA Status: Each ingredient is on the inventory

NRS Status (Canada): Each ingredient is on the DSL

SARA Title III: **Hazard Categories:**

Acute Health: yes

Chronic Health: no

Fire: no

Pressure Hazard: no

Reactivity: no

Reportable Ingredients:

Sec: 313: none

Sec. 302: none

16. OTHER INFORMATION

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Gray Silicone
Common Name(s): Silicone Coated Glass
Fabric

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Route of Entry: This material may enter the body through inhalation of nuisance dust.

Target Organs: Respiratory system

Inhalation: Sore, raspy throat

Skin Contact: Redness and possible rash; itching

Eye Contact: Itching and redness

Ingestion: N/A

NFPA: Health = 1, Fire = 0, Reactivity = 0

HMIS III: H1/F0/PH0

GHS Signal Word:

WARNING

GHS Classifications:

Health, Skin corrosion/irritation, 3

Health, Specific target organ toxicity - Single exposure, 3

GHS Phrases:

H316 - Causes mild skin irritation

H335 - May cause respiratory irritation

GHS Precautionary Statements:

P264 - Wash _ thoroughly after handling.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Fibrous Glass (CAS 65997-17-3)

Exposure Limits: OSHA PEL 15 mg/m³ (total), 5 mg/m³ (respirable). ACGIH TLV 1 f/cc

Compounded silicone coating

4. FIRST AID MEASURES

Inhalation: Remove person to fresh air. If condition persists, seek medical attention.

Skin Contact: Rinse with copious quantities of cool water. If rash or itching persists, seek medical attention.

Eye Contact: Rinse with water. Do not rub eyes. Seek medical attention.

Ingestion: Not applicable.

5. FIRE FIGHTING MEASURES

Flash Point (Method Used): >250 C by TOC Flammable Limits

LEL: N/A **UEL:** N/A

Extinguishing Media: Water, carbon dioxide, or dry chemical

Special Fire Fighting Procedures: Thermal decomposition of fiber coating may produce an irritating mixture of smoke and fumes.

Unusual Fire and Explosion Hazards: None

6. ACCIDENTAL RELEASE MEASURES

Material is a solid in roll form. If accidentally released, rewind material back onto roll.

7. HANDLING AND STORAGE

Handling Precautions: Use adequate material handling equipment.

Storage Requirements: Store in dry place. Use may be at temperature extremes based on product data, but storage should be at ambient temperature.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local exhaust; dust collection

Personal Protective Equip: HMIS PP, A | Safety Glasses
Safety glasses; cotton gloves; long sleeve clothing

Wash thoroughly with soap and water after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Silver-Gray Rubber Coating

MSDS Number: CL-08-SP
Revision Date: 5-25-16

Safety Data Sheet

Page 3 of 4

Physical State: Solid
Spec Grav. /Density: 2.4
Boiling Point: N/A
Vapor Pressure: N/A
pH: N/A
Odor: No Odor
Solubility: Negligible
Freezing/Melting Pt.: > 1000°F
Vapor Density: N/A

10. STABILITY AND REACTIVITY

Stability: Material is stable.
Conditions to Avoid: None known.
Materials to Avoid: Strong-oxidizing agents.
Hazardous Decomposition: Carbon monoxide; carbon dioxide
Hazardous Polymerization: Will Not Occur.

11. TOXICOLOGICAL INFORMATION

Direct contact with fiberglass materials or exposure to airborne fiberglass dust may irritate the skin, eyes, nose and throat. Fiberglass can cause itching due to mechanical irritation from the fibers. This is not an allergic reaction to the material. Breathing fibers may irritate the airways resulting in coughing and a scratchy throat. Some people are sensitive to the fibers, while others are not.

12. ECOLOGICAL INFORMATION

No known hazards except for airborne fibers caused by nuisance dust. 10 milligrams per cubic meter for fiber diameters less than 7 microns.

13. DISPOSAL CONSIDERATIONS

Incineration preferred in a federal, state, or local approved facility.

14. TRANSPORT INFORMATION

None special required.

15. REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

None known

16. OTHER INFORMATION

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Stainless Steel Cam Buckle
Common Name(s): Stainless Steel
Products (Types 304 and 316)

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Description Of Hazards:

Dust and fumes may be generated during working, e.g. during welding, cutting or grinding. Long term over-exposure to air pollutants in the form of dust or fumes may affect health and cause, for instance, chronic bronchitis. A thin coat of anti-corrosion oil is applied to certain materials. This should be taken into account during handling and working. Heating and working of materials that have been coated with anti-corrosion oil may cause irritating and hygienically harmful fumes. Skin irritation may be caused by repeated or extended contact with anti-corrosion oil.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Material/Component | CAS Number | % Weight | |
|--------------------------|------------|-----------|-----------|
| | | TYPE 304 | TYPE 316 |
| <u>Alloying Elements</u> | | | |
| Carbon (C) | 7440-44-0 | 0.08 max | 0.08 max |
| Manganese (Mn) | 7439-96-5 | 2.0 max | 2.0 max |
| Phosphorous (P) | 7723-14-0 | 0.045 max | 0.045 max |
| Sulfur (S) | 7704-34-9 | 0.030 max | 0.030 max |
| Silicon (Si) | 7440-21-3 | 2.0 max | 0.75 max |
| Chromium (Cr) | 7440-47-3 | 18.0-20.0 | 18.0-20.0 |
| Nickel (Ni) | 7440-02-0 | 8.0-12.0 | 8.0-12.0 |
| Molybdenum (Mo) | 7439-98-7 | 0.0 | 2.0-3.0 |
| Nitrogen (N) | 7727-37-9 | 0.10 max | 0.10 max |
| <u>Base Metal</u> | | | |
| Iron (Fe) | 7439-89-6 | Balance | Balance |

NOTE: The above listing is a summary of elements used to alloy stainless steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

4. FIRST AID MEASURES

Eye Contact: flush eyes with plenty of water for at least 15 minutes. Seek medical attention if eye irritation persists.

Skin Contact: maintain good personal hygiene. Wash affected area with mild soap and water. Seek medical attention if skin irritation persists.

Inhalation: remove to fresh air. Check for clear airway, breathing and presence of pulse. If necessary, administer CPR. Consult a physician immediately.

Ingestion: Rare in industry. Dust may irritate mouth and gastrointestinal tract. If ingested, seek medical attention promptly.

Most important symptoms/effects, acute and delayed: Stainless steel as sold and shipped is not likely to present an acute or chronic health effects. However, during processing (cutting, milling, grinding, melting or welding) emitted byproducts may cause irritations, difficulty in breathing, coughing or wheezing. May cause allergic skin reactions. Indication of immediate medical attention and special treatment needed, if necessary:

Notes To Physician: May cause sensitization by skin contact or inhalation. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Non-flammable. Will not support combustion. Not applicable for solid product. Use extinguishers appropriate for surrounding materials. Do not use water on molten metal.

Specific Hazards Arising From Material: Not applicable for solid product.

Hazardous Combustion Products: At temperatures above the melting point, fumes containing metal oxides and other alloying elements may be liberated.

Special Protective Equipment And Precautions For Fire Fighters: Firefighters should wear self-contained NIOSH-approved breathing apparatus and full protective clothing.

Explosion Data:

Sensitivity To Mechanical Impact: None.

Sensitivity To Static Discharge: N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment And Emergency Procedures: Not applicable to stainless steel in solid state. Avoid dust formation. Ensure adequate ventilation. Clean-

up personnel should be protected against contact with eyes and skin protection.

Environmental Precautions: Not applicable to stainless steel in solid state.

Methods And Materials For Containment And Cleaning Up: Not applicable to stainless steel in solid state. For spills involving fine dusts, remove by vacuuming or wet sweeping methods to prevent spreading of dust. Avoid inhalation of dusts.

7. HANDLING AND STORAGE

Precautions For Safe Handling: Not applicable to stainless steel in solid state. Operations with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Practice good housekeeping. Avoid breathing metal fumes and/or dust.

Conditions For Safe Storage: No special storage conditions for stainless steel in solid state.

Incompatible Products: Store away from acids and incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: There are no exposure limits for stainless steel. The exposure limit for iron-containing fumes has been established at 5 mg/m³ with ACGIH's TWA. The individual complex compounds within the fume may have lower exposure limits than the general fume.

| Material/Component | CAS # | Exposure Limits | |
|--------------------------|-----------|---------------------------------------|---|
| | | OSHA PEL (mg/m3) | ACGIH TLV (mg/m3) |
| <u>Alloying Elements</u> | | | |
| Carbon (C) | 7440-44-0 | None Listed | None Listed |
| Manganese (Mn) | 7439-96-5 | 5.0 as Mn | 1.0 as Mn |
| Phosphorous (P) | 7723-14-0 | 0.1 as P | 0.1 as P |
| Sulfur (S) | 7704-34-9 | 13 (Sulfur Dioxide) | 5 (Sulfur Dioxide) |
| Silicon (Si) | 7440-21-3 | None Listed | None Listed |
| Chromium (Cr) | 7440-47-3 | 1.0 as Cr | 0.5 as Cr |
| Nickel (Ni) | 7440-02-0 | 1.0 as Ni | 1.0 as Ni |
| Molybdenum (Mo) | 7439-98-7 | 5.0 Sol. Cmpds | 5.0 Sol. Cmpds |
| Nitrogen (N) | 7727-37-9 | None Listed | Simple Asphyxiant |
| <u>Base Metal</u> | | | |
| Iron (Fe) | 7439-89-6 | (Fe ₂ O ₃ Fume) | 5 (Fe ₂ O ₃ Fume) |

Notes: Threshold Limit Values (TLV) established by the American Conference of

Governmental Industrial Hygienists (ACGIH 2011) are 8-hour Time Weighted Average concentrations unless otherwise noted.

Appropriate Engineering Controls: Provide general or local exhaust to minimize airborne concentrations during milling, grinding, melting and welding operations.

Individual Protective Measures: Dependent upon process being performed on material each operation must be addressed for suitable equipment.

Gloves (Specify): Wear gloves as required

Eyes (Specify): Safety glasses or goggles as required.

Clothing (Specify): N/A

Footwear (Specify): N/A

Respirator (Specify): If concentrations exceed established limits use NIOSH/MSHA approved particulate respirators (dust & fume or high efficiency dust fume) when grinding or welding.

Other (Specify): N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Appearance: Silver Grey Metallic (Steel)

Odor: Not Applicable

Odor Threshold: Not Applicable

pH: Not Applicable

Melting Point: 1530°C (2786°F)

Boiling Point: Not Applicable

Flash Point (°C): N/A

Evaporation Rate: Not Applicable

Flammability (Solid, Gas): Not Flammable

Upper Flammable Limit %: Not Applicable

Lower Flammable Limit %: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density: Not Applicable

Relative Density: 7.86

Specific Gravity: No Data

Solubility: Not Soluble

Partition Coefficient: No Data

Auto-Ignition Temp (°C): Not Applicable

Decomposition Temperature: No Data

Viscosity: Not Applicable

Other Information: Not Applicable

10. STABILITY AND REACTIVITY

Reactivity: Not determined for product in solid form.

Chemical Stability: Yes. Steel products are stable under normal storage and handling conditions.

Possibility Of Hazardous Reactions: Hazardous polymerization cannot occur.

Conditions To Avoid: Contact with mineral acids will release flammable hydrogen gas. Dust formation.

Incompatible Materials: Yes, strong acids.

Hazardous Decomposition Products: Not Applicable.

11. TOXICOLOGICAL INFORMATION

Likely Routes Of Entry: None for stainless steel in its natural solid state.

Eyes: High concentrations of dust may cause irritation to the eyes.

Skin: Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals.

Inhalation: Inhalation of metal particulate or elemental oxide fumes generated during welding, burning, grinding or machining may pose acute or chronic health effects.

Symptoms Related To The Physical, Chemical And Toxicological Characteristics: None for stainless steel in its natural solid state.

Effects Of Acute Exposure To Material: Manganese & Copper: Inhalation overexposure to manganese or copper (or zinc coated products) may cause metal fume fever characterized by fever and chills (i.e. flu-like symptoms) which appear 4-6 hours after exposure with no long-term effects.

Effects Of Chronic Exposure To Material:

Chromium: IARC lists certain hexavalent chromium compounds under its Group 1 category - "confirmed human carcinogens" and metallic chromium under its Group 3 category - "not classifiable as to their carcinogenicity to humans". Chromium metal is classified as carcinogenic by NTP.

Nickel: IARC lists metallic nickel under its Group 2B category - "possibly carcinogenic to humans". Nickel may cause skin sensitivity.

Cobalt: Cobalt dust may result in an asthma-like condition (cough, shortness of breath). IARC lists metallic cobalt under its Group 2B category - "possibly carcinogenic to humans".

Iron: Inhalation overexposures may cause a benign pneumoconiosis (siderosis) with few or no symptoms.

Manganese: Existing studies are inadequate to assess its carcinogenicity. Susceptible to Parkinson's disease, metal fume fever and kidney damage.

STOT (Single Exposure): No data.

STOT (Repeated Exposures): Respiratory system. Allergic skin reactions.

Mutagenicity Of Material: N/A

Reproductive Effects: N/A

Teratogenicity Of Material: N/A

Carcinogenicity Of Material:

Chromium: IARC lists certain hexavalent chromium compounds under its Group 1 category - "confirmed human carcinogens" and metallic chromium under its Group 3 category - "not classifiable as to their carcinogenicity to humans".

Nickel: IARC lists metallic nickel under its Group 2B category - "possibly carcinogenic to humans".

Cobalt: IARC lists metallic cobalt under its Group 2B category - "possibly carcinogenic to humans".

Synergistic Materials: N/A

Aspiration Hazard: No data.

Sensitization Of Material: N/A

LD50 (of Material): Not established

LC50 (of Material): Not established

Notes:

- STOT – Specific Target Organ Toxicity
- International Agency for Research on Cancer (IARC) - Summaries & Evaluations (2008).
- 3rd Annual Report on Carcinogens as prepared by the National Toxicology Program (NTP).
- Iron containing welding fume has an exposure limit of 5 mg/m³ (ACGIH-TLV's 2011). Welding fume may also contain contaminants from fluxes or welding consumables. Prolonged skin contact may cause reddening and drying of skin or dermatitis in sensitive individuals due to nickel and/or chromium content in steel.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available for the stainless steel in its natural solid state. However, individual components of the material have been found to be toxic to the environment.

| Component | Toxicity To Fish | Toxicity To Algae | Toxicity To Microorganisms |
|-----------|--|-----------------------|---------------------------------|
| Iron | LC50 Common Carp 96 hr. 0.56 mg/l | - | - |
| Chromium | LC50 Fathead minnow 96 hr. 10-100 mg/l | - | - |
| Nickel | LC50 Common Carp 96 hr. 1.3 mg/l | EC50 Freshwater Algae | EC50 Water Flea 48 hr. 1.0 mg/l |

72 hr. 0.18 mg/l

Persistence And Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility In Soil: No data available for stainless steel in its natural solid state. Individual metal dusts may migrate into soil and groundwater and be absorbed by plants.

Other Adverse Effects: None known.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Steel scrap should be recycled whenever possible.

Container Cleaning & Disposal: Dispose of in accordance with applicable federal, provincial/state or local regulations.

14. TRANSPORT INFORMATION

General Shipping Information: Stainless steel not regulated for shipping.

Shipping Name And Description: N/A

Un Number: N/A

Hazard Class: N/A

Packing Group/Risk Group: N/A

Transport Regulations:

Canadian Transportation of Dangerous Goods Regulations (TDG) March 2011.

US Department of Transport (DOT) Hazardous Materials shipping information (Title 49 - Transportation March 2011).

15. REGULATORY INFORMATION

Regulatory Information: The following listing of regulations relating to the product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.

Additional Canadian Regulations:

WHMIS Classification: Class **D2A/D2B:** Materials Causing Other Toxic Effects.

Domestic Substances List: The components of this material are on the federal DSL Inventory.

Other Canadian Regulations: N/A

Additional U.S. Regulations:

SARA: The components of this material are subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA – Oct. 2006).

SARA Threshold Planning Quantity: There are no specific Threshold Planning Quantities

for the components of this material. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

TSCA Inventory Status: The components of this material are listed on the Toxic Substances Control Act Inventory.

CERCLA Reportable Quantity (RQ): RQ's for Hazardous Substances in the Comprehensive Environmental Response, Compensation, and Liability Act are: Chromium = 5000 lb. (2270 kg); Copper = 5000 lb. (2270 kg); Nickel = 100 lb. (45 kg).

California (Proposition 65): The Chromium (VI) component of this material is known in the State of California to cause cancer. The Nickel component of this material is known in the State of California to cause cancer. The Cobalt component of this material is known in the State of California to cause cancer.

Other U.S. Federal Regulations: N/A.

Additional European Union Regulations:

RoHS & WEEE: This MSDS follows the European Union Directive "Restriction on the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment" (2002/95/EC) and the "Waste Electrical and Electronic Equipment (WEEE)" Directive (2002/96/EC).

Lead (Pb): Lead is not intentionally added to stainless steel however; it may exist in trace levels. Although not analyzed, lead levels in steel are typically well below the EU Directive limit of 0.1%. Note, the EU Directive has a lead exemption limit of up to 0.35% as an alloying element in steel.

Chromium VI (Cr +6): The hexavalent oxidation state of chromium does not normally exist as part of a metal or alloy

16. OTHER INFORMATION

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire, exposure, or accident call CHEMTREC (800) 424-9300, day or night

Product Identification

Product Name: Stainless Steel D-Ring
Common Name(s): Stainless Steel Type 301, 302, 303, 304, 305, 308, 309, 310, 314, 321, 347, 415, F6NM, 1.4306, 153MA™, 253MA®, 353MA®, and 2304 - anchors, hooks, rings & washers

2. HAZARDS IDENTIFICATION

Precautionary Statements:

P281: Wear personal protective equipment as required

P302: If on skin, wash with mild soap and running water

P304: If inhaled, move individual to fresh air. Seek medical attention if irritation persists

P305: If in eyes, flush eyes at least 15 minutes; seek medical attention if irritation persists

Hazard Statements: N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Abstracts Service Number: N/A

| <u>Hazardous Ingredients</u> | <u>Weight %</u> | <u>OSHA-PEL</u> | <u>ACGIH-TLV</u> | <u>OTHER</u> |
|------------------------------|-----------------|-----------------|------------------|--------------|
| Stainless steel alloy | | | | |
| Chromium (Cr) | 10 to 27 | | | |
| Fume | | 0.5 mg/m3 | 0.05 mg/m3 | |
| dust/mist | | 1.0 mg/m3 | 0.5 mg/m3 | |
| Nickel (Ni) | 0.0 to 35 | | | |
| fume (soluble) | | 1.0 mg/m3 | 0.1 mg/m3 | |
| dust | | 1.0 mg/m3 | 1.0 mg/m3 | |
| Manganese (Mn) | 0.0 to 15 | | | |
| fume | | 5.0 mg/m3 C* | 1.0 mg/m3 | |
| dust | | 5.0 mg/m3 C* | 5.0 mg/m3 C* | |
| Copper | 0.0 to 4.0 | 0.1 mg/m3 | 0.2 mg/m3 | |
| Tungsten | 0.0 to 4.0 | none | 5.0 mg/m3 | |
| Molybdenum | 0.0 to 4.0 | 15 mg/m3 | 10 mg/m3 | |
| Aluminum | 0.0 to 2.0 | none | 10 mg/m3 | |

| | | | |
|---------|------------|-----------|------------|
| Silicon | 0.0 to 5.0 | none | 10 mg/m3 |
| Cobalt | 0.0 to 5.0 | 0.1 mg/m3 | 0.05 mg/m3 |

Nonhazardous Ingredients

| | | | |
|--------------------|----------|----------------------------|-----------|
| Sizing | < 1 | -----none established----- | |
| Iron (Fe) dust | 48 to 89 | -----none----- | |
| fumes | | | |
| (as Iron oxide) | | 10 mg/m3 | 5.0 mg/m3 |
| C* = Ceiling limit | | | |

4. FIRST AID MEASURES

Inhalation: Move individual to fresh air. Seek medical attention if irritation persists. Administer artificial respiration, if breathing has stopped.

Skin Contact: Wash with mild soap and running water. To avoid further irritation do not rub or scratch irritated areas. Seek medical attention if irritation persists.

Eye Contact: Flush eyes with flowing water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: N. A. (Not Applicable)

5. FIRE FIGHTING MEASURES

Extinguishing Equipment: Water, foam, carbon dioxide, dry chemical

Special Fire-Fighting Instructions: In a sustained fire, self-contained breathing apparatus with full-face piece and protective clothing should be worn.

Unusual Fire and Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS (Use Appropriate Safety Equipment/PPE):

For solid product, not applicable.

For dusts and fibers generated during fabrication, vacuum and containerize.

7. HANDLING AND STORAGE

Handling: See Section 8.

Storage: No special precautions necessary.

Disposal: Dispose of in accordance with federal, state and local regulations as a solid nonhazardous waste.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: General dilution ventilation and/or local exhaust ventilation should be provided, as necessary, to maintain exposures below PEL's or TLV's. Adequate ventilation must be provided at elevated temperatures.

Respiratory Protection: A properly fitted NIOSH/MHSA approved disposable dust respirator should be

Used when: high dust levels are encountered; the level of Chromium/Nickel/Manganese dust or glass fibers in the air exceeds the OSHA permissible exposure limits; or if irritation occurs. Use an air-supplied respirator in confined spaces. Use industrial hygiene air monitoring to insure that TLV or PEL values are not exceeded. Use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134.

Eye Protection: Safety glasses, goggles or face shields should be worn.

Protective Clothing: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Wear gloves when handling product.

Work/Hygienic Practices: Handle in accordance with good industrial hygiene and safety practices:

- Avoid unnecessary exposure to dusts and fibers
- Remove fibers from skin after exposure
- Be careful not to rub or scratch irritated areas. Rubbing or scratching may force the fibers into the skin. The fibers should be washed off. Use of barrier creams can, in some instances, be helpful.
- Use vacuum equipment to remove fibers and dusts from clothing. **COMPRESSED AIR SHOULD NEVER BE USED.** Always wash work clothes separately and wipe out the washer/sink in order to prevent loose glass fibers from getting on other clothes.
- Keep the work area clean of any dusts and fibers generated during fabrication. Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques resuspend dusts and fibers into the air.
- Have access to safety showers and eye wash fountains.
- For professional use only. Keep out of children's reach.

Exposure Limits (TLVS): N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point (Softening): NM (Not Measured)

Boiling Point (°C): N/A (Not Applicable)

Specific Gravity (Bare Glass): NM

Percent Volatile: N/A

Vapor Pressure: (mm Hg): N/A

Vapor Density (Air = 1): N/A

Evaporative Rate (Ethyl Ether = 1): N/A

Solubility in Water: Not soluble

Appearance and Odor: Metallic appearing accessories with no odor.

pH: N/A

Relative Density: N/A

Upper/Lower Flammability or Exposure Limits: N/A

Freezing Point: N/A

Flash Point: N/A

Partition coefficient (n-octanol/water): N/A

Auto Ignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

10. STABILITY AND REACTIVITY

Stability (Conditions to Avoid): Product is stable.

Stabilizers: N/A

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: See Section 11.

Hazardous Polymerization: Will not occur.

Flash Point (°F): N/A (Not Applicable)

Auto Ignition Temperature (°F): N/A

Flammability Limits (%): LEL: N/A UEL: N/A

11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and skin contact.

Health Hazards (Including acute and chronic effects and symptoms of overexposure):

ACUTE: NOTE: Stainless steel products in their usual physical state do not pose any Health hazards. However, when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, or similar operations, potentially hazardous fumes or dusts may be emitted. Despite the fact that welding, burning, etc. of stainless steel products in this category may produce fumes containing manganese, chromium, nickel and copper, the air concentrations generated of these components are expected to be extremely low.

Iron (Fe): Subjecting iron and alloys containing iron to high temperatures (such as welding) will cause the formation of iron oxide. Long-term exposure to iron oxide fumes or dusts has been associated with a benign lung condition known as siderosis, which

is observable as an x-ray change. No physical impairment of lung function has been linked to siderosis.

Manganese (Mn): Mn intoxication is usually due to the oxide or salts of Mn; elemental Mn exhibits very low toxicity. The dusts and fumes can act as minor irritants to the eyes and respiratory tract. Both acute and chronic exposure may adversely affect the central nervous system (CNS), but symptoms are more likely occur after at least one or two years of prolonged or repeated exposures. Early symptoms may include weakness in the lower extremities, sleepiness, salivation, nervousness and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expressions and uncontrollable laughing may occur. Manganese fumes have also been reported to result in metal fume fever, a flu-like syndrome with symptoms such as dizziness, chills, fever, headache and nausea. An increased incidence of pneumonia, bronchitis and pneumonitis has been reported in some worker populations exposed to manganese. Animal studies indicate exposure may increase susceptibility to bacterial and viral infection.

Chromium (Cr): The toxicity and health hazards of chromium are heavily dependent on its oxidation state. The elemental (as in the metals), divalent and trivalent forms are of very low toxicity. The hexavalent form (such as occurs in chromates and chromic acids) is very toxic and can produce both acute and chronic effects. Adverse effects on the skin may include ulcerations, irritative dermatitis and allergic skin reactions. Adverse effects on the respiratory system may include bronchospasms, edema, hypersecretion, bronchitis, irritation, allergic asthmatic reactions, and, ulceration and perforation of the nasal septum. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation can also be produced. Exposure to some hexavalent chromium compounds has also been shown to be associated with an increased risk of lung cancer.

Nickel (Ni): Ni fumes and dust are respiratory irritants and may cause severe pneumonitis. Skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch". Ni and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids (i.e. the conjunctiva). Animal and/or epidemiology studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the lungs and nasal passages.

Copper (Cu): Inhalation of copper fume may cause irritation of the eyes and throat and a flu-like illness called metal fume fever. Signs and symptoms of metal fume fever include fever, muscle aches, nausea, chills, dry throat, cough and weakness. Cu fume may also produce a metallic or sweet taste. Repeated or prolonged exposure to Cu fume may cause discoloration of the skin or hair.

Aluminum (Al): There are no reported known health effects. Aluminum is generally

considered to be in the nuisance dust category.

Silicon (Si): Silicon may produce x-ray changes in the lungs. There has been no known disability reported from the x-ray changes.

Tungsten (W): There has been some reported evidence of pulmonary involvement such as a cough.

Molybdenum (Mo): Molybdenum has caused, in animal studies, irritation of the nose and throat, weight loss and digestive disturbances. There have been no reports of industrial poisoning.

Cobalt (Co): Cobalt has been reported to cause asthma. It may also cause interstitial pneumonitis and sensitization of the respiratory system.

CHRONIC: See carcinogenicity section below. Chronic exposure to Chromium (Cr)/Nickel (Ni)/Manganese (Mn) fumes or dust may cause skin sensitization, asthma, bronchitis, lung fibrosis or pneumoniosis. It may also cause damage to the kidneys and liver as well as the nervous system.

CARCINOGENICITY:

| | | | | | |
|-----------------------------|--------------------------|---------------------|--------------------|-------------------|--------------------|
| Hazardous Ingredients: | Listed as carcinogen by: | <u>ACGIH</u> | <u>IARC</u> | <u>NTP</u> | <u>OSHA</u> |
| Chromium (Cr)/Nickel (Ni)** | | | ---- | none known---- | |

*****Dusts and fumes containing Chromium (Cr) or Nickel (Ni) should be considered carcinogens.**

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with a history of chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening their condition from exposure during use of the product.

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

See Section 8 (if applicable).

14. TRANSPORT INFORMATION

N/A

15. REGULATORY INFORMATION

N/A

16. OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire, exposure, or accident call CHEMTREC (800) 424-9300, day or night

Product Identification

Product Name: Stainless Steel Hog Ring

Common Name(s): Stainless Steel Type 301, 302, 303, 304, 305, 308, 309, 310, 314, 321, 347, 415, F6NM, 1.4306, 153MA™, 253MA®, 353MA®, and 2304 - anchors, hooks, rings & washers

2. HAZARDS IDENTIFICATION

Precautionary Statements:

P281: Wear personal protective equipment as required

P302: If on skin, wash with mild soap and running water

P304: If inhaled, move individual to fresh air. Seek medical attention if irritation persists

P305: If in eyes, flush eyes at least 15 minutes; seek medical attention if irritation persists

Hazard Statements: N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Abstracts Service Number: N/A

| <u>Hazardous Ingredients</u> | <u>Weight %</u> | <u>OSHA-PEL</u> | <u>ACGIH-TLV</u> | <u>OTHER</u> |
|------------------------------|-----------------|-----------------|------------------|--------------|
| Stainless steel alloy | | | | |
| Chromium (Cr) | 10 to 27 | | | |
| Fume | | 0.5 mg/m3 | 0.05 mg/m3 | |
| dust/mist | | 1.0 mg/m3 | 0.5 mg/m3 | |
| Nickel (Ni) | 0.0 to 35 | | | |
| fume (soluble) | | 1.0 mg/m3 | 0.1 mg/m3 | |
| dust | | 1.0 mg/m3 | 1.0 mg/m3 | |
| Manganese (Mn) | 0.0 to 15 | | | |
| fume | | 5.0 mg/m3 C* | 1.0 mg/m3 | |
| dust | | 5.0 mg/m3 C* | 5.0 mg/m3 C* | |
| Copper | 0.0 to 4.0 | 0.1 mg/m3 | 0.2 mg/m3 | |
| Tungsten | 0.0 to 4.0 | none | 5.0 mg/m3 | |
| Molybdenum | 0.0 to 4.0 | 15 mg/m3 | 10 mg/m3 | |
| Aluminum | 0.0 to 2.0 | none | 10 mg/m3 | |

| | | | |
|---------|------------|-----------------------|------------------------|
| Silicon | 0.0 to 5.0 | none | 10 mg/m ³ |
| Cobalt | 0.0 to 5.0 | 0.1 mg/m ³ | 0.05 mg/m ³ |

Nonhazardous Ingredients

| | | | |
|--------------------|----------|----------------------------|-----------------------|
| Sizing | < 1 | -----none established----- | |
| Iron (Fe) dust | 48 to 89 | -----none----- | |
| fumes | | | |
| (as Iron oxide) | | 10 mg/m ³ | 5.0 mg/m ³ |
| C* = Ceiling limit | | | |

4. FIRST AID MEASURES

Inhalation: Move individual to fresh air. Seek medical attention if irritation persists. Administer artificial respiration, if breathing has stopped.

Skin Contact: Wash with mild soap and running water. To avoid further irritation do not rub or scratch irritated areas. Seek medical attention if irritation persists.

Eye Contact: Flush eyes with flowing water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: N. A. (Not Applicable)

5. FIRE FIGHTING MEASURES

Extinguishing Equipment: Water, foam, carbon dioxide, dry chemical

Special Fire-Fighting Instructions: In a sustained fire, self-contained breathing apparatus with full-face piece and protective clothing should be worn.

Unusual Fire and Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS (Use Appropriate Safety Equipment/PPE):

For solid product, not applicable.

For dusts and fibers generated during fabrication, vacuum and containerize.

7. HANDLING AND STORAGE

Handling: See Section 8.

Storage: No special precautions necessary.

Disposal: Dispose of in accordance with federal, state and local regulations as a solid nonhazardous waste.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: General dilution ventilation and/or local exhaust ventilation should be provided, as necessary, to maintain exposures below PEL's or TLV's. Adequate ventilation must be provided at elevated temperatures.

Respiratory Protection: A properly fitted NIOSH/MHSA approved disposable dust respirator should be

Used when: high dust levels are encountered; the level of Chromium/Nickel/Manganese dust or glass fibers in the air exceeds the OSHA permissible exposure limits; or if irritation occurs. Use an air-supplied respirator in confined spaces. Use industrial hygiene air monitoring to insure that TLV or PEL values are not exceeded. Use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134.

Eye Protection: Safety glasses, goggles or face shields should be worn.

Protective Clothing: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Wear gloves when handling product.

Work/Hygienic Practices: Handle in accordance with good industrial hygiene and safety practices:

- Avoid unnecessary exposure to dusts and fibers
- Remove fibers from skin after exposure
- Be careful not to rub or scratch irritated areas. Rubbing or scratching may force the fibers into the skin. The fibers should be washed off. Use of barrier creams can, in some instances, be helpful.
- Use vacuum equipment to remove fibers and dusts from clothing. **COMPRESSED AIR SHOULD NEVER BE USED.** Always wash work clothes separately and wipe out the washer/sink in order to prevent loose glass fibers from getting on other clothes.
- Keep the work area clean of any dusts and fibers generated during fabrication. Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques resuspend dusts and fibers into the air.
- Have access to safety showers and eye wash fountains.
- For professional use only. Keep out of children's reach.

Exposure Limits (TLVS): N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point (Softening): NM (Not Measured)

Boiling Point (°C): N/A (Not Applicable)

Specific Gravity (Bare Glass): NM

Percent Volatile: N/A

Vapor Pressure: (mm Hg): N/A

Vapor Density (Air = 1): N/A

Evaporative Rate (Ethyl Ether = 1): N/A

Solubility in Water: Not soluble

Appearance and Odor: Metallic appearing accessories with no odor.

pH: N/A

Relative Density: N/A

Upper/Lower Flammability or Exposure Limits: N/A

Freezing Point: N/A

Flash Point: N/A

Partition coefficient (n-octanol/water): N/A

Auto Ignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

10. STABILITY AND REACTIVITY

Stability (Conditions to Avoid): Product is stable.

Stabilizers: N/A

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: See Section 11.

Hazardous Polymerization: Will not occur.

Flash Point (°F): N/A (Not Applicable)

Auto Ignition Temperature (°F): N/A

Flammability Limits (%): LEL: N/A UEL: N/A

11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and skin contact.

Health Hazards (Including acute and chronic effects and symptoms of overexposure):

ACUTE: NOTE: Stainless steel products in their usual physical state do not pose any Health hazards. However, when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, or similar operations, potentially hazardous fumes or dusts may be emitted. Despite the fact that welding, burning, etc. of stainless steel products in this category may produce fumes containing manganese, chromium, nickel and copper, the air concentrations generated of these components are expected to be extremely low.

Iron (Fe): Subjecting iron and alloys containing iron to high temperatures (such as welding) will cause the formation of iron oxide. Long-term exposure to iron oxide fumes or dusts has been associated with a benign lung condition known as siderosis, which

is observable as an x-ray change. No physical impairment of lung function has been linked to siderosis.

Manganese (Mn): Mn intoxication is usually due to the oxide or salts of Mn; elemental Mn exhibits very low toxicity. The dusts and fumes can act as minor irritants to the eyes and respiratory tract. Both acute and chronic exposure may adversely affect the central nervous system (CNS), but symptoms are more likely occur after at least one or two years of prolonged or repeated exposures. Early symptoms may include weakness in the lower extremities, sleepiness, salivation, nervousness and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expressions and uncontrollable laughing may occur. Manganese fumes have also been reported to result in metal fume fever, a flu-like syndrome with symptoms such as dizziness, chills, fever, headache and nausea. An increased incidence of pneumonia, bronchitis and pneumonitis has been reported in some worker populations exposed to manganese. Animal studies indicate exposure may increase susceptibility to bacterial and viral infection.

Chromium (Cr): The toxicity and health hazards of chromium are heavily dependent on its oxidation state. The elemental (as in the metals), divalent and trivalent forms are of very low toxicity. The hexavalent form (such as occurs in chromates and chromic acids) is very toxic and can produce both acute and chronic effects. Adverse effects on the skin may include ulcerations, irritative dermatitis and allergic skin reactions. Adverse effects on the respiratory system may include bronchospasms, edema, hypersecretion, bronchitis, irritation, allergic asthmatic reactions, and, ulceration and perforation of the nasal septum. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation can also be produced. Exposure to some hexavalent chromium compounds has also been shown to be associated with an increased risk of lung cancer.

Nickel (Ni): Ni fumes and dust are respiratory irritants and may cause severe pneumonitis. Skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch". Ni and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids (i.e. the conjunctiva). Animal and/or epidemiology studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the lungs and nasal passages.

Copper (Cu): Inhalation of copper fume may cause irritation of the eyes and throat and a flu-like illness called metal fume fever. Signs and symptoms of metal fume fever include fever, muscle aches, nausea, chills, dry throat, cough and weakness. Cu fume may also produce a metallic or sweet taste. Repeated or prolonged exposure to Cu fume may cause discoloration of the skin or hair.

Aluminum (Al): There are no reported known health effects. Aluminum is generally

considered to be in the nuisance dust category.

Silicon (Si): Silicon may produce x-ray changes in the lungs. There has been no known disability reported from the x-ray changes.

Tungsten (W): There has been some reported evidence of pulmonary involvement such as a cough.

Molybdenum (Mo): Molybdenum has caused, in animal studies, irritation of the nose and throat, weight loss and digestive disturbances. There have been no reports of industrial poisoning.

Cobalt (Co): Cobalt has been reported to cause asthma. It may also cause interstitial pneumonitis and sensitization of the respiratory system.

CHRONIC: See carcinogenicity section below. Chronic exposure to Chromium (Cr)/Nickel (Ni)/Manganese (Mn) fumes or dust may cause skin sensitization, asthma, bronchitis, lung fibrosis or pneumoniosis. It may also cause damage to the kidneys and liver as well as the nervous system.

CARCINOGENICITY:

| | | | | | |
|-----------------------------|--------------------------|---------------------|--------------------|-------------------|--------------------|
| Hazardous Ingredients: | Listed as carcinogen by: | <u>ACGIH</u> | <u>IARC</u> | <u>NTP</u> | <u>OSHA</u> |
| Chromium (Cr)/Nickel (Ni)** | | | ---- | none known | ---- |

*****Dusts and fumes containing Chromium (Cr) or Nickel (Ni) should be considered carcinogens.**

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with a history of chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening their condition from exposure during use of the product.

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

See Section 8 (if applicable).

14. TRANSPORT INFORMATION

N/A

15. REGULATORY INFORMATION

N/A

16. OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire, exposure, or accident call CHEMTREC (800) 424-9300, day or night

Product Identification

Product Name: Stainless Steel Quilting Pin

Common Name(s): Stainless Steel Type

301, 302, 303, 304, 305, 308, 309, 310, 314, 321, 347, 415, F6NM, 1.4306, 153MA™, 253MA®, 353MA®, and 2304 - anchors, hooks, rings & washers

2. HAZARDS IDENTIFICATION

Precautionary Statements:

P281: Wear personal protective equipment as required

P302: If on skin, wash with mild soap and running water

P304: If inhaled, move individual to fresh air. Seek medical attention if irritation persists

P305: If in eyes, flush eyes at least 15 minutes; seek medical attention if irritation persists

Hazard Statements: N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Abstracts Service Number: N/A

| <u>Hazardous Ingredients</u> | <u>Weight %</u> | <u>OSHA-PEL</u> | <u>ACGIH-TLV</u> | <u>OTHER</u> |
|------------------------------|-----------------|-----------------|------------------|--------------|
| Stainless steel alloy | | | | |
| Chromium (Cr) | 10 to 27 | | | |
| Fume | | 0.5 mg/m3 | 0.05 mg/m3 | |
| dust/mist | | 1.0 mg/m3 | 0.5 mg/m3 | |
| Nickel (Ni) | 0.0 to 35 | | | |
| fume (soluble) | | 1.0 mg/m3 | 0.1 mg/m3 | |
| dust | | 1.0 mg/m3 | 1.0 mg/m3 | |
| Manganese (Mn) | 0.0 to 15 | | | |
| fume | | 5.0 mg/m3 C* | 1.0 mg/m3 | |
| dust | | 5.0 mg/m3 C* | 5.0 mg/m3 C* | |
| Copper | 0.0 to 4.0 | 0.1 mg/m3 | 0.2 mg/m3 | |
| Tungsten | 0.0 to 4.0 | none | 5.0 mg/m3 | |
| Molybdenum | 0.0 to 4.0 | 15 mg/m3 | 10 mg/m3 | |
| Aluminum | 0.0 to 2.0 | none | 10 mg/m3 | |

| | | | |
|---------|------------|-----------|------------|
| Silicon | 0.0 to 5.0 | none | 10 mg/m3 |
| Cobalt | 0.0 to 5.0 | 0.1 mg/m3 | 0.05 mg/m3 |

Nonhazardous Ingredients

| | | | |
|--------------------|----------|----------------------------|-----------|
| Sizing | < 1 | -----none established----- | |
| Iron (Fe) dust | 48 to 89 | -----none----- | |
| fumes | | | |
| (as Iron oxide) | | 10 mg/m3 | 5.0 mg/m3 |
| C* = Ceiling limit | | | |

4. FIRST AID MEASURES

Inhalation: Move individual to fresh air. Seek medical attention if irritation persists. Administer artificial respiration, if breathing has stopped.

Skin Contact: Wash with mild soap and running water. To avoid further irritation do not rub or scratch irritated areas. Seek medical attention if irritation persists.

Eye Contact: Flush eyes with flowing water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: N. A. (Not Applicable)

5. FIRE FIGHTING MEASURES

Extinguishing Equipment: Water, foam, carbon dioxide, dry chemical

Special Fire-Fighting Instructions: In a sustained fire, self-contained breathing apparatus with full-face piece and protective clothing should be worn.

Unusual Fire and Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS (Use Appropriate Safety Equipment/PPE):

For solid product, not applicable.

For dusts and fibers generated during fabrication, vacuum and containerize.

7. HANDLING AND STORAGE

Handling: See Section 8.

Storage: No special precautions necessary.

Disposal: Dispose of in accordance with federal, state and local regulations as a solid nonhazardous waste.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: General dilution ventilation and/or local exhaust ventilation should be provided, as necessary, to maintain exposures below PEL's or TLV's. Adequate ventilation must be provided at elevated temperatures.

Respiratory Protection: A properly fitted NIOSH/MHSA approved disposable dust respirator should be

Used when: high dust levels are encountered; the level of Chromium/Nickel/Manganese dust or glass fibers in the air exceeds the OSHA permissible exposure limits; or if irritation occurs. Use an air-supplied respirator in confined spaces. Use industrial hygiene air monitoring to insure that TLV or PEL values are not exceeded. Use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134.

Eye Protection: Safety glasses, goggles or face shields should be worn.

Protective Clothing: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Wear gloves when handling product.

Work/Hygienic Practices: Handle in accordance with good industrial hygiene and safety practices:

- Avoid unnecessary exposure to dusts and fibers
- Remove fibers from skin after exposure
- Be careful not to rub or scratch irritated areas. Rubbing or scratching may force the fibers into the skin. The fibers should be washed off. Use of barrier creams can, in some instances, be helpful.
- Use vacuum equipment to remove fibers and dusts from clothing. **COMPRESSED AIR SHOULD NEVER BE USED.** Always wash work clothes separately and wipe out the washer/sink in order to prevent loose glass fibers from getting on other clothes.
- Keep the work area clean of any dusts and fibers generated during fabrication. Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques resuspend dusts and fibers into the air.
- Have access to safety showers and eye wash fountains.
- For professional use only. Keep out of children's reach.

Exposure Limits (TLVS): N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point (Softening): NM (Not Measured)

Boiling Point (°C): N/A (Not Applicable)

Specific Gravity (Bare Glass): NM

Percent Volatile: N/A

Vapor Pressure: (mm Hg): N/A

Vapor Density (Air = 1): N/A

Evaporative Rate (Ethyl Ether = 1): N/A

Solubility in Water: Not soluble

Appearance and Odor: Metallic appearing accessories with no odor.

pH: N/A

Relative Density: N/A

Upper/Lower Flammability or Exposure Limits: N/A

Freezing Point: N/A

Flash Point: N/A

Partition coefficient (n-octanol/water): N/A

Auto Ignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

10. STABILITY AND REACTIVITY

Stability (Conditions to Avoid): Product is stable.

Stabilizers: N/A

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: See Section 11.

Hazardous Polymerization: Will not occur.

Flash Point (°F): N/A (Not Applicable)

Auto Ignition Temperature (°F): N/A

Flammability Limits (%):

LEL: N/A

UEL: N/A

11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and skin contact.

Health Hazards (Including acute and chronic effects and symptoms of overexposure):

ACUTE: NOTE: Stainless steel products in their usual physical state do not pose any Health hazards. However, when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, or similar operations, potentially hazardous fumes or dusts may be emitted. Despite the fact that welding, burning, etc. of stainless steel products in this category may produce fumes containing manganese, chromium, nickel and copper, the air concentrations generated of these components are expected to be extremely low.

Iron (Fe): Subjecting iron and alloys containing iron to high temperatures (such as welding) will cause the formation of iron oxide. Long-term exposure to iron oxide fumes or dusts has been associated with a benign lung condition known as siderosis, which

is observable as an x-ray change. No physical impairment of lung function has been linked to siderosis.

Manganese (Mn): Mn intoxication is usually due to the oxide or salts of Mn; elemental Mn exhibits very low toxicity. The dusts and fumes can act as minor irritants to the eyes and respiratory tract. Both acute and chronic exposure may adversely affect the central nervous system (CNS), but symptoms are more likely occur after at least one or two years of prolonged or repeated exposures. Early symptoms may include weakness in the lower extremities, sleepiness, salivation, nervousness and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expressions and uncontrollable laughing may occur. Manganese fumes have also been reported to result in metal fume fever, a flu-like syndrome with symptoms such as dizziness, chills, fever, headache and nausea. An increased incidence of pneumonia, bronchitis and pneumonitis has been reported in some worker populations exposed to manganese. Animal studies indicate exposure may increase susceptibility to bacterial and viral infection.

Chromium (Cr): The toxicity and health hazards of chromium are heavily dependent on its oxidation state. The elemental (as in the metals), divalent and trivalent forms are of very low toxicity. The hexavalent form (such as occurs in chromates and chromic acids) is very toxic and can produce both acute and chronic effects. Adverse effects on the skin may include ulcerations, irritative dermatitis and allergic skin reactions. Adverse effects on the respiratory system may include bronchospasms, edema, hypersecretion, bronchitis, irritation, allergic asthmatic reactions, and, ulceration and perforation of the nasal septum. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation can also be produced. Exposure to some hexavalent chromium compounds has also been shown to be associated with an increased risk of lung cancer.

Nickel (Ni): Ni fumes and dust are respiratory irritants and may cause severe pneumonitis. Skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch". Ni and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids (i.e. the conjunctiva). Animal and/or epidemiology studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the lungs and nasal passages.

Copper (Cu): Inhalation of copper fume may cause irritation of the eyes and throat and a flu-like illness called metal fume fever. Signs and symptoms of metal fume fever include fever, muscle aches, nausea, chills, dry throat, cough and weakness. Cu fume may also produce a metallic or sweet taste. Repeated or prolonged exposure to Cu fume may cause discoloration of the skin or hair.

Aluminum (Al): There are no reported known health effects. Aluminum is generally

considered to be in the nuisance dust category.

Silicon (Si): Silicon may produce x-ray changes in the lungs. There has been no known disability reported from the x-ray changes.

Tungsten (W): There has been some reported evidence of pulmonary involvement such as a cough.

Molybdenum (Mo): Molybdenum has caused, in animal studies, irritation of the nose and throat, weight loss and digestive disturbances. There have been no reports of industrial poisoning.

Cobalt (Co): Cobalt has been reported to cause asthma. It may also cause interstitial pneumonitis and sensitization of the respiratory system.

CHRONIC: See carcinogenicity section below. Chronic exposure to Chromium (Cr)/Nickel (Ni)/Manganese (Mn) fumes or dust may cause skin sensitization, asthma, bronchitis, lung fibrosis or pneumoniosis. It may also cause damage to the kidneys and liver as well as the nervous system.

CARCINOGENICITY:

| | | | | | |
|-----------------------------|--------------------------|---------------------|--------------------|-------------------|--------------------|
| Hazardous Ingredients: | Listed as carcinogen by: | <u>ACGIH</u> | <u>IARC</u> | <u>NTP</u> | <u>OSHA</u> |
| Chromium (Cr)/Nickel (Ni)** | | | ---- | none known---- | |

*****Dusts and fumes containing Chromium (Cr) or Nickel (Ni) should be considered carcinogens.**

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with a history of chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening their condition from exposure during use of the product.

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

See Section 8 (if applicable).

14. TRANSPORT INFORMATION

N/A

15. REGULATORY INFORMATION

N/A

16. OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Stainless Steel Tag
Common Name(s): Stainless Steel
Products (Types 304 and 316)

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Description Of Hazards:

Dust and fumes may be generated during working, e.g. during welding, cutting or grinding. Long term over-exposure to air pollutants in the form of dust or fumes may affect health and cause, for instance, chronic bronchitis. A thin coat of anti-corrosion oil is applied to certain materials. This should be taken into account during handling and working. Heating and working of materials that have been coated with anti-corrosion oil may cause irritating and hygienically harmful fumes. Skin irritation may be caused by repeated or extended contact with anti-corrosion oil.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Material/Component | CAS Number | % Weight | |
|--------------------------|------------|-----------|-----------|
| | | TYPE 304 | TYPE 316 |
| <u>Alloying Elements</u> | | | |
| Carbon (C) | 7440-44-0 | 0.08 max | 0.08 max |
| Manganese (Mn) | 7439-96-5 | 2.0 max | 2.0 max |
| Phosphorous (P) | 7723-14-0 | 0.045 max | 0.045 max |
| Sulfur (S) | 7704-34-9 | 0.030 max | 0.030 max |
| Silicon (Si) | 7440-21-3 | 2.0 max | 0.75 max |
| Chromium (Cr) | 7440-47-3 | 18.0-20.0 | 18.0-20.0 |
| Nickel (Ni) | 7440-02-0 | 8.0-12.0 | 8.0-12.0 |
| Molybdenum (Mo) | 7439-98-7 | 0.0 | 2.0-3.0 |
| Nitrogen (N) | 7727-37-9 | 0.10 max | 0.10 max |
| <u>Base Metal</u> | | | |
| Iron (Fe) | 7439-89-6 | Balance | Balance |

NOTE: The above listing is a summary of elements used to alloy stainless steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

4. FIRST AID MEASURES

Eye Contact: flush eyes with plenty of water for at least 15 minutes. Seek medical attention if eye irritation persists.

Skin Contact: maintain good personal hygiene. Wash affected area with mild soap and water. Seek medical attention if skin irritation persists.

Inhalation: remove to fresh air. Check for clear airway, breathing and presence of pulse. If necessary, administer CPR. Consult a physician immediately.

Ingestion: Rare in industry. Dust may irritate mouth and gastrointestinal tract. If ingested, seek medical attention promptly.

Most important symptoms/effects, acute and delayed: Stainless steel as sold and shipped is not likely to present an acute or chronic health effects. However, during processing (cutting, milling, grinding, melting or welding) emitted byproducts may cause irritations, difficulty in breathing, coughing or wheezing. May cause allergic skin reactions. Indication of immediate medical attention and special treatment needed, if necessary:

Notes To Physician: May cause sensitization by skin contact or inhalation. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Non-flammable. Will not support combustion. Not applicable for solid product. Use extinguishers appropriate for surrounding materials. Do not use water on molten metal.

Specific Hazards Arising From Material: Not applicable for solid product.

Hazardous Combustion Products: At temperatures above the melting point, fumes containing metal oxides and other alloying elements may be liberated.

Special Protective Equipment And Precautions For Fire Fighters: Firefighters should wear self-contained NIOSH-approved breathing apparatus and full protective clothing.

Explosion Data:

Sensitivity To Mechanical Impact: None.

Sensitivity To Static Discharge: N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment And Emergency Procedures: Not applicable to stainless steel in solid state. Avoid dust formation. Ensure adequate ventilation. Clean-

up personnel should be protected against contact with eyes and skin protection.

Environmental Precautions: Not applicable to stainless steel in solid state.

Methods And Materials For Containment And Cleaning Up: Not applicable to stainless steel in solid state. For spills involving fine dusts, remove by vacuuming or wet sweeping methods to prevent spreading of dust. Avoid inhalation of dusts.

7. HANDLING AND STORAGE

Precautions For Safe Handling: Not applicable to stainless steel in solid state. Operations with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Practice good housekeeping. Avoid breathing metal fumes and/or dust.

Conditions For Safe Storage: No special storage conditions for stainless steel in solid state.

Incompatible Products: Store away from acids and incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: There are no exposure limits for stainless steel. The exposure limit for iron-containing fumes has been established at 5 mg/m³ with ACGIH's TWA. The individual complex compounds within the fume may have lower exposure limits than the general fume.

| Material/Component | CAS # | Exposure Limits OSHA PEL (mg/m3) | ACGIH TLV (mg/m3) |
|--------------------------|-----------|---------------------------------------|---|
| <u>Alloying Elements</u> | | | |
| Carbon (C) | 7440-44-0 | None Listed | None Listed |
| Manganese (Mn) | 7439-96-5 | 5.0 as Mn | 1.0 as Mn |
| Phosphorous (P) | 7723-14-0 | 0.1 as P | 0.1 as P |
| Sulfur (S) | 7704-34-9 | 13 (Sulfur Dioxide) | 5 (Sulfur Dioxide) |
| Silicon (Si) | 7440-21-3 | None Listed | None Listed |
| Chromium (Cr) | 7440-47-3 | 1.0 as Cr | 0.5 as Cr |
| Nickel (Ni) | 7440-02-0 | 1.0 as Ni | 1.0 as Ni |
| Molybdenum (Mo) | 7439-98-7 | 5.0 Sol. Cmpds | 5.0 Sol. Cmpds |
| Nitrogen (N) | 7727-37-9 | None Listed | Simple Asphyxiant |
| <u>Base Metal</u> | | | |
| Iron (Fe) | 7439-89-6 | (Fe ₂ O ₃ Fume) | 5 (Fe ₂ O ₃ Fume) |

Notes: Threshold Limit Values (TLV) established by the American Conference of

Governmental Industrial Hygienists (ACGIH 2011) are 8-hour Time Weighted Average concentrations unless otherwise noted.

Appropriate Engineering Controls: Provide general or local exhaust to minimize airborne concentrations during milling, grinding, melting and welding operations.

Individual Protective Measures: Dependent upon process being performed on material each operation must be addressed for suitable equipment.

Gloves (Specify): Wear gloves as required

Eyes (Specify): Safety glasses or goggles as required.

Clothing (Specify): N/A

Footwear (Specify): N/A

Respirator (Specify): If concentrations exceed established limits use NIOSH/MSHA approved particulate respirators (dust & fume or high efficiency dust fume) when grinding or welding.

Other (Specify): N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Appearance: Silver Grey Metallic (Steel)

Odor: Not Applicable

Odor Threshold: Not Applicable

pH: Not Applicable

Melting Point: 1530°C (2786°F)

Boiling Point: Not Applicable

Flash Point (°C): N/A

Evaporation Rate: Not Applicable

Flammability (Solid, Gas): Not Flammable

Upper Flammable Limit %: Not Applicable

Lower Flammable Limit %: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density: Not Applicable

Relative Density: 7.86

Specific Gravity: No Data

Solubility: Not Soluble

Partition Coefficient: No Data

Auto-Ignition Temp (°C): Not Applicable

Decomposition Temperature: No Data

Viscosity: Not Applicable

Other Information: Not Applicable

10. STABILITY AND REACTIVITY

Reactivity: Not determined for product in solid form.

Chemical Stability: Yes. Steel products are stable under normal storage and handling conditions.

Possibility Of Hazardous Reactions: Hazardous polymerization cannot occur.

Conditions To Avoid: Contact with mineral acids will release flammable hydrogen gas. Dust formation.

Incompatible Materials: Yes, strong acids.

Hazardous Decomposition Products: Not Applicable.

11. TOXICOLOGICAL INFORMATION

Likely Routes Of Entry: None for stainless steel in its natural solid state.

Eyes: High concentrations of dust may cause irritation to the eyes.

Skin: Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals.

Inhalation: Inhalation of metal particulate or elemental oxide fumes generated during welding, burning, grinding or machining may pose acute or chronic health effects.

Symptoms Related To The Physical, Chemical And Toxicological Characteristics: None for stainless steel in its natural solid state.

Effects Of Acute Exposure To Material: Manganese & Copper: Inhalation overexposure to manganese or copper (or zinc coated products) may cause metal fume fever characterized by fever and chills (i.e. flu-like symptoms) which appear 4-6 hours after exposure with no long-term effects.

Effects Of Chronic Exposure To Material:

Chromium: IARC lists certain hexavalent chromium compounds under its Group 1 category - "confirmed human carcinogens" and metallic chromium under its Group 3 category - "not classifiable as to their carcinogenicity to humans". Chromium metal is classified as carcinogenic by NTP.

Nickel: IARC lists metallic nickel under its Group 2B category - "possibly carcinogenic to humans". Nickel may cause skin sensitivity.

Cobalt: Cobalt dust may result in an asthma-like condition (cough, shortness of breath). IARC lists metallic cobalt under its Group 2B category - "possibly carcinogenic to humans".

Iron: Inhalation overexposures may cause a benign pneumoconiosis (siderosis) with few or no symptoms.

Manganese: Existing studies are inadequate to assess its carcinogenicity. Susceptible to Parkinson's disease, metal fume fever and kidney damage.

STOT (Single Exposure): No data.

STOT (Repeated Exposures): Respiratory system. Allergic skin reactions.

Mutagenicity Of Material: N/A

Reproductive Effects: N/A

Teratogenicity Of Material: N/A

Carcinogenicity Of Material:

Chromium: IARC lists certain hexavalent chromium compounds under its Group 1 category - "confirmed human carcinogens" and metallic chromium under its Group 3 category - "not classifiable as to their carcinogenicity to humans".

Nickel: IARC lists metallic nickel under its Group 2B category - "possibly carcinogenic to humans".

Cobalt: IARC lists metallic cobalt under its Group 2B category - "possibly carcinogenic to humans".

Synergistic Materials: N/A

Aspiration Hazard: No data.

Sensitization Of Material: N/A

LD50 (of Material): Not established

LC50 (of Material): Not established

Notes:

- STOT – Specific Target Organ Toxicity
- International Agency for Research on Cancer (IARC) - Summaries & Evaluations (2008).
- 3rd Annual Report on Carcinogens as prepared by the National Toxicology Program (NTP).
- Iron containing welding fume has an exposure limit of 5 mg/m³ (ACGIH-TLV's 2011). Welding fume may also contain contaminants from fluxes or welding consumables. Prolonged skin contact may cause reddening and drying of skin or dermatitis in sensitive individuals due to nickel and/or chromium content in steel.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available for the stainless steel in its natural solid state. However, individual components of the material have been found to be toxic to the environment.

| Component | Toxicity To Fish | Toxicity To Algae | Toxicity To Microorganisms |
|-----------|--|-----------------------|---------------------------------|
| Iron | LC50 Common Carp 96 hr. 0.56 mg/l | - | - |
| Chromium | LC50 Fathead minnow 96 hr. 10-100 mg/l | - | - |
| Nickel | LC50 Common Carp 96 hr. 1.3 mg/l | EC50 Freshwater Algae | EC50 Water Flea 48 hr. 1.0 mg/l |

72 hr. 0.18 mg/l

Persistence And Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility In Soil: No data available for stainless steel in its natural solid state. Individual metal dusts may migrate into soil and groundwater and be absorbed by plants.

Other Adverse Effects: None known.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Steel scrap should be recycled whenever possible.

Container Cleaning & Disposal: Dispose of in accordance with applicable federal, provincial/state or local regulations.

14. TRANSPORT INFORMATION

General Shipping Information: Stainless steel not regulated for shipping.

Shipping Name And Description: N/A

Un Number: N/A

Hazard Class: N/A

Packing Group/Risk Group: N/A

Transport Regulations:

Canadian Transportation of Dangerous Goods Regulations (TDG) March 2011.

US Department of Transport (DOT) Hazardous Materials shipping information (Title 49 - Transportation March 2011).

15. REGULATORY INFORMATION

Regulatory Information: The following listing of regulations relating to the product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.

Additional Canadian Regulations:

WHMIS Classification: Class **D2A/D2B:** Materials Causing Other Toxic Effects.

Domestic Substances List: The components of this material are on the federal DSL Inventory.

Other Canadian Regulations: N/A

Additional U.S. Regulations:

SARA: The components of this material are subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA – Oct. 2006).

SARA Threshold Planning Quantity: There are no specific Threshold Planning Quantities

for the components of this material. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

TSCA Inventory Status: The components of this material are listed on the Toxic Substances Control Act Inventory.

CERCLA Reportable Quantity (RQ): RQ's for Hazardous Substances in the Comprehensive Environmental Response, Compensation, and Liability Act are: Chromium = 5000 lb. (2270 kg); Copper = 5000 lb. (2270 kg); Nickel = 100 lb. (45 kg).

California (Proposition 65): The Chromium (VI) component of this material is known in the State of California to cause cancer. The Nickel component of this material is known in the State of California to cause cancer. The Cobalt component of this material is known in the State of California to cause cancer.

Other U.S. Federal Regulations: N/A.

Additional European Union Regulations:

RoHS & WEEE: This MSDS follows the European Union Directive "Restriction on the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment" (2002/95/EC) and the "Waste Electrical and Electronic Equipment (WEEE)" Directive (2002/96/EC).

Lead (Pb): Lead is not intentionally added to stainless steel however; it may exist in trace levels. Although not analyzed, lead levels in steel are typically well below the EU Directive limit of 0.1%. Note, the EU Directive has a lead exemption limit of up to 0.35% as an alloying element in steel.

Chromium VI (Cr +6): The hexavalent oxidation state of chromium does not normally exist as part of a metal or alloy

16. OTHER INFORMATION

Disclaimer:

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1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire, exposure, or accident call CHEMTREC (800) 424-9300, day or night

Product Identification

Product Name: Stainless Steel Washer

Common Name(s): Stainless Steel Type 301, 302, 303, 304, 305, 308, 309, 310, 314, 321, 347, 415, F6NM, 1.4306, 153MA™, 253MA®, 353MA®, and 2304 - anchors, hooks, rings & washers

2. HAZARDS IDENTIFICATION

Precautionary Statements:

P281: Wear personal protective equipment as required

P302: If on skin, wash with mild soap and running water

P304: If inhaled, move individual to fresh air. Seek medical attention if irritation persists

P305: If in eyes, flush eyes at least 15 minutes; seek medical attention if irritation persists

Hazard Statements: N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Abstracts Service Number: N/A

| <u>Hazardous Ingredients</u> | <u>Weight %</u> | <u>OSHA-PEL</u> | <u>ACGIH-TLV</u> | <u>OTHER</u> |
|------------------------------|-----------------|-----------------|------------------|--------------|
| Stainless steel alloy | | | | |
| Chromium (Cr) | 10 to 27 | | | |
| Fume | | 0.5 mg/m3 | 0.05 mg/m3 | |
| dust/mist | | 1.0 mg/m3 | 0.5 mg/m3 | |
| Nickel (Ni) | 0.0 to 35 | | | |
| fume (soluble) | | 1.0 mg/m3 | 0.1 mg/m3 | |
| dust | | 1.0 mg/m3 | 1.0 mg/m3 | |
| Manganese (Mn) | 0.0 to 15 | | | |
| fume | | 5.0 mg/m3 C* | 1.0 mg/m3 | |
| dust | | 5.0 mg/m3 C* | 5.0 mg/m3 C* | |
| Copper | 0.0 to 4.0 | 0.1 mg/m3 | 0.2 mg/m3 | |
| Tungsten | 0.0 to 4.0 | none | 5.0 mg/m3 | |
| Molybdenum | 0.0 to 4.0 | 15 mg/m3 | 10 mg/m3 | |
| Aluminum | 0.0 to 2.0 | none | 10 mg/m3 | |
| Silicon | 0.0 to 5.0 | none | 10 mg/m3 | |

| | | | |
|--|------------|----------------------------|------------|
| Cobalt | 0.0 to 5.0 | 0.1 mg/m3 | 0.05 mg/m3 |
| <u>Nonhazardous Ingredients</u> | | | |
| Sizing | < 1 | -----none established----- | |
| Iron (Fe) dust | 48 to 89 | -----none----- | |
| fumes | | | |
| (as Iron oxide) | | 10 mg/m3 | 5.0 mg/m3 |
| C* = Ceiling limit | | | |

4. FIRST AID MEASURES

Inhalation: Move individual to fresh air. Seek medical attention if irritation persists. Administer artificial respiration, if breathing has stopped.

Skin Contact: Wash with mild soap and running water. To avoid further irritation do not rub or scratch irritated areas. Seek medical attention if irritation persists.

Eye Contact: Flush eyes with flowing water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: N. A. (Not Applicable)

5. FIRE FIGHTING MEASURES

Extinguishing Equipment: Water, foam, carbon dioxide, dry chemical

Special Fire-Fighting Instructions: In a sustained fire, self-contained breathing apparatus with full-face piece and protective clothing should be worn.

Unusual Fire and Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS (Use Appropriate Safety Equipment/PPE):

For solid product, not applicable.

For dusts and fibers generated during fabrication, vacuum and containerize.

7. HANDLING AND STORAGE

Handling: See Section 8.

Storage: No special precautions necessary.

Disposal: Dispose of in accordance with federal, state and local regulations as a solid nonhazardous waste.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: General dilution ventilation and/or local exhaust ventilation should be provided, as necessary, to maintain exposures below PEL's or TLV's. Adequate ventilation must be provided at elevated temperatures.

Respiratory Protection: A properly fitted NIOSH/MHSA approved disposable dust respirator should be

Used when: high dust levels are encountered; the level of Chromium/Nickel/Manganese dust or glass fibers in the air exceeds the OSHA permissible exposure limits; or if irritation occurs. Use an air-supplied respirator in confined spaces. Use industrial hygiene air monitoring to insure that TLV or PEL values are not exceeded. Use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134.

Eye Protection: Safety glasses, goggles or face shields should be worn.

Protective Clothing: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Wear gloves when handling product.

Work/Hygienic Practices: Handle in accordance with good industrial hygiene and safety practices:

- Avoid unnecessary exposure to dusts and fibers
- Remove fibers from skin after exposure
- Be careful not to rub or scratch irritated areas. Rubbing or scratching may force the fibers into the skin. The fibers should be washed off. Use of barrier creams can, in some instances, be helpful.
- Use vacuum equipment to remove fibers and dusts from clothing. **COMPRESSED AIR SHOULD NEVER BE USED.** Always wash work clothes separately and wipe out the washer/sink in order to prevent loose glass fibers from getting on other clothes.
- Keep the work area clean of any dusts and fibers generated during fabrication. Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques resuspend dusts and fibers into the air.
- Have access to safety showers and eye wash fountains.
- For professional use only. Keep out of children's reach.

Exposure Limits (TLVS): N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point (Softening): NM (Not Measured)

Boiling Point (°C): N/A (Not Applicable)

Specific Gravity (Bare Glass): NM

Percent Volatile: N/A

Vapor Pressure: (mm Hg): N/A

Vapor Density (Air = 1): N/A

MSDS Number: FAS-07-SP

Revision Date: 5-25-16

Evaporative Rate (Ethyl Ether = 1): N/A

Solubility in Water: Not soluble

Appearance and Odor: Metallic appearing accessories with no odor.

pH: N/A

Relative Density: N/A

Upper/Lower Flammability or Exposure Limits: N/A

Freezing Point: N/A

Flash Point: N/A

Partition coefficient (n-octanol/water): N/A

Auto Ignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

10. STABILITY AND REACTIVITY

Stability (Conditions to Avoid): Product is stable.

Stabilizers: N/A

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: See Section 11.

Hazardous Polymerization: Will not occur.

Flash Point (°F): N/A (Not Applicable)

Auto Ignition Temperature (°F): N/A

Flammability Limits (%): LEL: N/A UEL: N/A

11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and skin contact.

Health Hazards (Including acute and chronic effects and symptoms of overexposure):

ACUTE: NOTE: Stainless steel products in their usual physical state do not pose any Health hazards. However, when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, or similar operations, potentially hazardous fumes or dusts may be emitted. Despite the fact that welding, burning, etc. of stainless steel products in this category may produce fumes containing manganese, chromium, nickel and copper, the air concentrations generated of these components are expected to be extremely low.

Iron (Fe): Subjecting iron and alloys containing iron to high temperatures (such as welding) will cause the formation of iron oxide. Long-term exposure to iron oxide fumes or dusts has been associated with a benign lung condition known as siderosis, which is observable as an x-ray change. No physical impairment of lung function has been

linked to siderosis.

Manganese (Mn): Mn intoxication is usually due to the oxide or salts of Mn; elemental Mn exhibits very low toxicity. The dusts and fumes can act as minor irritants to the eyes and respiratory tract. Both acute and chronic exposure may adversely affect the central nervous system (CNS), but symptoms are more likely occur after at least one or two years of prolonged or repeated exposures. Early symptoms may include weakness in the lower extremities, sleepiness, salivation, nervousness and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expressions and uncontrollable laughing may occur. Manganese fumes have also been reported to result in metal fume fever, a flu-like syndrome with symptoms such as dizziness, chills, fever, headache and nausea. An increased incidence of pneumonia, bronchitis and pneumonitis has been reported in some worker populations exposed to manganese. Animal studies indicate exposure may increase susceptibility to bacterial and viral infection.

Chromium (Cr): The toxicity and health hazards of chromium are heavily dependent on its oxidation state. The elemental (as in the metals), divalent and trivalent forms are of very low toxicity. The hexavalent form (such as occurs in chromates and chromic acids) is very toxic and can produce both acute and chronic effects. Adverse effects on the skin may include ulcerations, irritative dermatitis and allergic skin reactions. Adverse effects on the respiratory system may include bronchospasms, edema, hypersecretion, bronchitis, irritation, allergic asthmatic reactions, and, ulceration and perforation of the nasal septum. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation can also be produced. Exposure to some hexavalent chromium compounds has also been shown to be associated with an increased risk of lung cancer.

Nickel (Ni): Ni fumes and dust are respiratory irritants and may cause severe pneumonitis. Skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch". Ni and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids (i.e. the conjunctiva). Animal and/or epidemiology studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the lungs and nasal passages.

Copper (Cu): Inhalation of copper fume may cause irritation of the eyes and throat and a flu-like illness called metal fume fever. Signs and symptoms of metal fume fever include fever, muscle aches, nausea, chills, dry throat, cough and weakness. Cu fume may also produce a metallic or sweet taste. Repeated or prolonged exposure to Cu fume may cause discoloration of the skin or hair.

Aluminum (Al): There are no reported known health effects. Aluminum is generally considered to be in the nuisance dust category.

Silicon (Si): Silicon may produce x-ray changes in the lungs. There has been no known disability reported from the x-ray changes.

Tungsten (W): There has been some reported evidence of pulmonary involvement such as a cough.

Molybdenum (Mo): Molybdenum has caused, in animal studies, irritation of the nose and throat, weight loss and digestive disturbances. There have been no reports of industrial poisoning.

Cobalt (Co): Cobalt has been reported to cause asthma. It may also cause interstitial pneumonitis and sensitization of the respiratory system.

CHRONIC: See carcinogenicity section below. Chronic exposure to Chromium (Cr)/Nickel (Ni)/Manganese (Mn) fumes or dust may cause skin sensitization, asthma, bronchitis, lung fibrosis or pneumoniosis. It may also cause damage to the kidneys and liver as well as the nervous system.

CARCINOGENICITY:

Hazardous Ingredients: Listed as carcinogen by: **ACGIH** **IARC** **NTP** **OSHA**
Chromium (Cr)/Nickel (Ni)** ----none known----

*****Dusts and fumes containing Chromium (Cr) or Nickel (Ni) should be considered carcinogens.**

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with a history of chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening their condition from exposure during use of the product.

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

See Section 8 (if applicable).

14. TRANSPORT INFORMATION

N/A

15. REGULATORY INFORMATION

N/A

16. OTHER INFORMATION

MSDS Number: FAS-07-SP

Revision Date: 5-25-16

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Individuals should make a determination as to the suitability of the information for their particular purpose(s).

1. PRODUCT AND COMPANY IDENTIFICATION

Company Identification

UniTherm International Inc.
711 Jones Street
Lewisville, Texas 75057

Product Identification

Product Name: Stainless Steel & Kevlar
Sewing Thread
Common Name(s): PTFE Coated Sewing
Thread

EMERGENCY TELEPHONE NUMBER:

For emergency involving spill, leak, fire,
exposure, or accident call CHEMTREC
(800) 424-9300, day or night

2. HAZARDS IDENTIFICATION

Route of Entry: This material may enter the body through inhalation of nuisance dust.

Target Organs: Respiratory system

Inhalation: Sore, raspy throat. Inhaling fumes of the decomposition products of polytetrafluoroethylene can induce temporary influenza-like symptoms. These symptoms include fever, cough and malaise.

Skin Contact: Redness and possible rash; itching

Eye Contact: Itching and redness

Ingestion: N/A

NFPA: Health = 3, Fire = 0, Reactivity = 0

HMIS III: H1/F0/PH0

GHS Signal Word:

WARNING

GHS Classifications:

Health, Skin corrosion/irritation, 2

GHS Phrases:

H315 - Causes skin irritation

GHS Precautionary Statements:

P352 - Wash with soap and water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Kevlar (CAS 26125-61-1)
Stainless Steel
Polytetrafluoroethylene (CAS 9002-84-0)

4. FIRST AID MEASURES

Inhalation: Remove person to fresh air. If condition persists, seek medical attention.

Skin Contact: Rinse with copious quantities of cool water. If rash or itching persists, seek medical attention.

Eye Contact: Rinse with water. Do not rub eyes. Seek medical attention.

Ingestion: Not applicable.

5. FIRE FIGHTING MEASURES

Flash Point (Method Used): >250 °C by TOC Flammable Limits

LEL: N/A **UEL:** N/A

Extinguishing Media: Water, carbon dioxide, or dry chemical

Special Fire Fighting Procedures: Thermal decomposition of fiber coating may produce an irritating mixture of smoke and fumes.

Unusual Fire and Explosion Hazards: None

6. ACCIDENTAL RELEASE MEASURES

Material is a solid in roll form. If accidentally released, rewind material back onto roll.

7. HANDLING AND STORAGE

Handling Precautions: Use adequate material handling equipment.

Storage Requirements: Store in dry place. Use may be at temperature extremes based on product data, but storage should be at ambient temperature.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local exhaust; dust collection

Personal Protective Equip: HMIS PP, B | Safety Glasses

Safety glasses; cotton gloves; long sleeve clothing

Wash thoroughly with soap and water after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow Thread/Wire Reinforced

Physical State: Solid

Spec Grav. /Density: 2.4

Boiling Point: N/A

Vapor Pressure: N/A

pH: N/A

Odor: No Odor

Solubility: Negligible

Freezing/Melting Pt.: > 500 °F

Vapor Density: N/A

10. STABILITY AND REACTIVITY

Stability: Material is stable.

Conditions to Avoid: None known.

Materials to Avoid: Strong-oxidizing agents.

Hazardous Decomposition: Carbon monoxide; carbon dioxide; hydrogen fluoride

Hazardous Polymerization: Will Not Occur.

11. TOXICOLOGICAL INFORMATION

None known

12. ECOLOGICAL INFORMATION

No known hazards except for airborne fibers caused by nuisance dust. 10 milligrams per cubic meter for fiber diameters less than 7 microns.

13. DISPOSAL CONSIDERATIONS

Incineration preferred in a federal, state, or local approved facility.

14. TRANSPORT INFORMATION

None special required.

15. REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

*Polytetrafluoroethylene (9002840 n/a%) PA, TSCA

REGULATORY KEY DESCRIPTIONS

PA = PA Right-To-Know List of Hazardous Substances

TSCA = Toxic Substances Control Act

16. OTHER INFORMATION

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