# Safety Data Sheet DURA-WELD FC

**Supercedes Date** 07/12/2013 **Issuing Date** 01/26/2017

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name** DURA-WELD FC
**Recommended use** Welding
**Information on Manufacturer**
X-ERGON by Partsmaster, Div of NCH Corp.
P.O. Box 655326
Dallas, TX 75265-5326

**Product Code** 66040035
**Chemical nature** Inorganic solid blend
**Emergency Telephone Number**
CHEMTREC® 800-424-9300
**Telephone inquiry**
800-336-0450

## 2. HAZARD IDENTIFICATION

**Color** Dark gray **Physical state** Solid **Odor** Odorless
**Mixture or Pure Substance:** Mixture

This Safety Data Sheet (SDS) was prepared in accordance with OSHA 2012 - 29 CFR 1910.1200, "Hazard Communication".

**GHS**
**Classification**
*Physical Hazards*

*Health Hazard*

| | |
|---|---|
| Acute Oral Toxicity | Category 4 |
| Skin Corrosion/Irritation | Category 2 |
| Serious Eye Damage/Eye Irritation | Category 2 |
| Skin sensitization | Category 1 |
| Carcinogenicity | Category 1A |
| Specific target organ toxicity (repeated exposure) | Category 1 |

*Other hazards*
Arc Rays can injure and burn eyes and skin Electric shock can kill FUMES AND GASES can be hazardous to your health.

**Labeling**
*Signal Word*
**DANGER**

*Hazard statements*
H319 - Causes serious eye irritation
H315 - Causes skin irritation
H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H350 - May cause cancer
H372 - Causes damage to organs through prolonged or repeated exposure

*Precautionary Statements*
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust or fume.
P270 - Do not eat, drink or smoke when using this product.
P281 - Use personal protective equipment as required
P280 - Wear protective gloves, protective clothing and eye protection.
P264 - Wash face, hands and any exposed skin thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace
P308 + P313 - IF exposed or concerned, get medical attention
P301+ P312 - IF SWALLOWED: Call a physician if unwell
P330 - Rinse mouth
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs, get medical attention
P362 - Take off contaminated clothing and wash before reuse.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists, get medical attention.
P501 - Dispose of contents and container in accordance with applicable local regulations.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

| Component | CAS No. | Weight % |
|---|---|---|
| Iron | 7439-89-6 | 75-98 |
| Titanium dioxide | 13463-67-7 | 5-10 |
| Manganese | 7439-96-5 | 1-5 |
| Silicon | 7440-21-3 | 1-5 |
| Quartz | 14808-60-7 | .1-1.5 |
| Calcium carbonate | 1317-65-3 | .5-1.5 |
| Molybdenum | 7439-98-7 | .1-1 |
| Zirconium oxide | 1314-23-4 | .5-1 |
| Potassium oxide | 12136-45-7 | .5-1 |
| Nickel | 7440-02-0 | 0.5-4 |
| Magnesium | 7439-95-4 | .5-1 |
| Calcium Fluoride | 7789-75-5 | 0-2 |
| Aluminum | 7429-90-5 | .1-1 |
| Copper | 7440-50-8 | 0-1 |

*The exact percentage (concentration) of composition has been withheld as a trade secret

## 4. FIRST AID MEASURES

**General advice** Avoid contact with skin, eyes and clothing. Avoid breathing dust.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

**Skin Contact** In case of contact, immediately flush skin with soap and plenty of water. If skin irritation persists, call a physician.

**Inhalation** Remove person to fresh air. If signs/symptoms continue, get medical attention.

**Ingestion** If swallowed, do not induce vomiting - seek medical advice. Rinse mouth.

**Notes to physician** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Flash Point** The product is not flammable **Method** No data available

**Upper:** No data available **Lower:** No data available

**Suitable Extinguishing Media**

Carbon dioxide (CO2). Dry chemical. Foam. Water spray.

**Specific hazards arising from the chemical**

Dust can form an explosive mixture in air.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, NOHSC (approved or equivalent) and full protective gear.

**NFPA** **Health** 2 **Flammability** 0 **Instability** 0

**HMIS** **Health** 2 **Flammability** 0 **Instability** 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions** Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.

**Environmental Precautions** Do not flush into surface water or sanitary sewer system.

**Methods for Containment** Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

**Methods for Cleaning Up** Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

**Neutralizing Agent** Not applicable.

## 7. HANDLING AND STORAGE

**Handling** Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product.

**Storage** Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place.

**Storage Temperature** **Minimum** No information available **Maximum** No information available

**Storage Conditions** **Indoor** X **Outdoor** **Heated** **Refrigerated**

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH |
|---|---|---|---|
| Titanium dioxide | TWA: 10 mg/m$^3$ | TWA: 15 mg/m$^3$ total dust | 5000 mg/m$^3$ |
| Manganese | TWA: 0.02 mg/m$^3$ respirable fraction<br>TWA: 0.1 mg/m$^3$ inhalable fraction<br>TWA: 0.02 mg/m$^3$<br>TWA: 0.1 mg/m$^3$ | Ceiling: 5 mg/m$^3$ | 500 mg/m$^3$<br>STEL 3 mg/m$^3$<br>TWA: 1 mg/m$^3$ fume TWA: 1 mg/m$^3$ |
| Silicon | No data available | TWA: 15 mg/m$^3$ total dust<br>TWA: 5 mg/m$^3$ respirable fraction | TWA: 10 mg/m$^3$ total dust<br>TWA: 5 mg/m$^3$ respirable dust |
| Quartz | TWA: 0.025 mg/m$^3$ respirable fraction | No data available | 50 mg/m$^3$ respirable dust<br>TWA: 0.05 mg/m$^3$ respirable dust |
| Calcium carbonate | No data available | TWA: 15 mg/m$^3$ total dust<br>TWA: 5 mg/m$^3$ respirable fraction | TWA: 10 mg/m$^3$ total dust<br>TWA: 5 mg/m$^3$ respirable dust |
| Molybdenum | TWA: 10 mg/m$^3$ inhalable fraction<br>TWA: 3 mg/m$^3$ respirable fraction | No data available | 5000 mg/m$^3$ |
| Zirconium oxide | TWA: 5 mg/m$^3$ | TWA: 5 mg/m$^3$ | STEL 10 mg/m$^3$<br>TWA: 5 mg/m$^3$ |
| Nickel | TWA: 1.5 mg/m$^3$ | TWA: 1 mg/m$^3$ | 10 mg/m$^3$<br>TWA: 0.015 mg/m$^3$ |
| Calcium Fluoride | TWA: 2.5 mg/m$^3$ | TWA: 2.5 mg/m$^3$<br>TWA: 2.5 mg/m$^3$ dust | No data available |
| Aluminum | TWA: 1 mg/m$^3$ respirable fraction | TWA: 15 mg/m$^3$ total dust<br>TWA: 5 mg/m$^3$ respirable fraction | TWA: 10 mg/m$^3$ total dust<br>TWA: 5 mg/m$^3$ respirable dust TWA: 5 mg/m$^3$ |
| Copper | TWA: 0.2 mg/m$^3$ fume TWA: 1 mg/m$^3$ dust and mist | TWA: 0.1 mg/m$^3$ fume<br>TWA: 1 mg/m$^3$ dust and mist | 100 mg/m$^3$ dust, fume and mist<br>TWA: 1 mg/m$^3$ dust and mist<br>TWA: 0.1 mg/m$^3$ fume |

**Engineering Measures** Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases below the TLV's in the worker's breathing zone and in the general area. Train the worker to keep his head out of the fumes.

**Personal Protective Equipment**

**Eye/Face Protection** Wear a helmet or use face shield with filter lens of appropriate shade number (SEE ANSI/ASCZ49.1) provide protective screen and flash goggles, if necessary, to shield others. As a rule of thumb, start a shade that is too dark to see the weld zone. Then go next lighter shade which gives sufficient view of the weld zone.

**Skin Protection** Welder's leather gloves, Wear fire/flame resistant/retardant clothing.

**Respiratory Protection** Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gasses below the TLV's in the workers' breathing zone and the general area. Train the worker to keep his head out of the fumes. Use MSHA/NIOSH approved or equivalent fume respirator or air supplied respirator when welding in a confined space or when local exhaust or ventilation does not keep exposure below TLV.

**General Hygiene Considerations** Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes and clothing. Wear head and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At minimum, this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hat, shoulder protection as well as dark nonsynthetic clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|---|---|---|---|
| **Physical state** | Solid | **Viscosity** | Not applicable |
| **Color** | Dark gray | **Odor** | Odorless |
| **Odor Threshold** | Not applicable | **Appearance** | Textured black paste |
| **pH** | Not applicable | **Specific Gravity** | No data available |
| **Evaporation Rate** | Not applicable | **Percent Volatile (Volume)** | No information available |
| **VOC Content (%)** | No information available. | **Vapor Pressure** | Not applicable |
| **Vapor Density** | Not applicable | **Solubility** | Insoluble |
| **n-Octanol/Water Partition** | No data available | **Melting Point/Range** | 1800 °F / 982 °C |
| **Decomposition Temperature** | No data available | **Boiling Point/Range** | No data available °F / °C |
| **Flammability (solid, gas)** | No data available | | |
| **Flash Point** | The product is not flammable | **Method** | No data available |
| **Autoignition Temperature** | No information available. | | |

**Upper:** No data available **Lower:** No data available

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| **Chemical Stability** | Stable under normal conditions. Hazardous polymerization does not occur. |
| **Conditions to Avoid** | Keep away from open flames, hot surfaces, and sources of ignition. |
| **Incompatible Products** | Incompatible with oxidizing agents, Strong acids. |
| **Decomposition Temperature** | No data available |
| **Hazardous Decomposition Products** | Fumes and gasses produced by welding, brazing and similar processes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, the procedures and the filler metal being used. Other conditions which also influence the composition and quantity of fumes and gases to which the worker may be exposed include: coatings on the metal being welded, the number of welders and the volume of the work space, the quality and amount of ventilation used, the position of the welder's head in relation to the fume plume, as well as the presence of contaminants in the atmosphere when the filler metal is consumed. The fume and gas decomposition products generated are different in percent and form the product ingredients listed in Section III. The products formed in normal operation include those originating from the volatilization, reaction and oxidation of the filler metal, the metal being welded, the coatings, etc. as noted above. One recommended way to determine the composition and quality of fumes and gases to which workers are exposed is to take an air sample inside the welders helmet if worn or in the workers breathing zone. See ANSI/AWS F1.1 "Method For Sampling Airborne Particles Generated By Welding And Allied Processes" available from the American Welding Society, P.O. Box 35140, Miami, FL 33135. |
| **Possibility of Hazardous Reactions** | None under normal processing. |

## 11. TOXICOLOGICAL INFORMATION

| | |
|---|---|
| Product Information | Generally established for welding fumes at 5mg/$m^3$. May be lower for some constituents |

**The following values are calculated based on chapter 3.1 of the GHS document**

| | |
|---|---|
| **Oral LD50** | No information available |
| **Dermal LD50** | No information available |
| **Inhalation LC50** | |
| **Gas** | No information available |
| **Mist** | No information available |
| **Vapor** | No information available |
| **Principle Route of Exposure** | Inhalation, Ingestion. |
| **Primary Routes of Entry** | Skin contact. |
| **Acute Effects:** | |
| **Eyes** | Causes eye irritation. Welding arc may damage eyes. |
| **Skin** | Causes skin irritation. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May cause allergic skin reaction. |
| **Inhalation** | Welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Fumes can aggravate asthma, bronchial conditions, or allergies. Individuals with allergies or impaired respiratory function may have symptoms worsen by exposure to welding fumes. Excessive inhalation of iron oxides fumes or dust can lead to irritation of the respiratory tract. Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. |
| **Ingestion** | May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. |
| **Chronic Toxicity** | Long term. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Inhalation of manganese fumes may affect the central nervous system, may cause spastic gait, drowsiness, paralysis and other neurological problems with symptoms including weakness and tremors resembling Parkinson's disease. Behavioral changes and changes in handwriting may also appear. The TLV for Manganese (0.02 mg/$m^3$) will be reached before the general limit for welding fumes of 5mg/$m^3$ is reached. Monitor fumes for manganese levels. Repetitive exposure to nickel oxides may lead to lung fibrosis or pneumoconiosis. Soreness and itchiness of the nose and changes in skin color and/or appearance may also result. Nickel compounds are on the IARC list as posing a carcinogenic risk to humans. OSHA (29 CFR 1910.120) lists nickel as possible carcinogen. Fume may cause Wilson's disease in some individuals with a rare inherited metabolic disorder characterized by retention of copper in the liver, brain, kidney and corneas. Wilson's disease, if untreated can result in liver failure. Inhalation of Molybdenum fumes has caused kidney damage, respiratory irritation and liver damage in animals. |
| **Target Organ Effects** | Respiratory system, Central nervous system, Kidney, Skin, Blood, Liver. |
| **Aggravated Medical Conditions** | Pre-existing respiratory and skin conditions such as asthma, emphysema, and dermatitis, Central |

nervous system, Kidney disorders, Allergies, Skin disorders, Liver disorders.

Component Information

**Acute Toxicity**

| Component | Oral LD50 | Dermal LD50 | Inhalation LC50 | Draize Test | Other |
|---|---|---|---|---|---|
| Iron 7439-89-6 | = 984 mg/kg ( Rat ) | no data available | No data available | No data available | No data available |
| Titanium dioxide 13463-67-7 | > 10000 mg/kg ( Rat ) | no data available | No data available | No data available | No data available |
| Quartz 14808-60-7 | = 500 mg/kg ( Rat ) | no data available | No data available | No data available | No data available |
| Calcium carbonate 1317-65-3 | 6450 mg/kg ( Rat ) | no data available | no data available | No data available | No data available |
| Nickel 7440-02-0 | > 9000 mg/kg ( Rat ) | no data available | No data available | No data available | No data available |
| Magnesium 7439-95-4 | = 230 mg/kg ( Rat ) | no data available | No data available | No data available | No data available |
| Calcium Fluoride 7789-75-5 | = 4250 mg/kg ( Rat ) | no data available | No data available | No data available | No data available |

| Component | Mutagenicity | Sensitization | Developmental Toxicity | Reproductive Toxicity | Target Organ Effects |
|---|---|---|---|---|---|
| Titanium dioxide 13463-67-7 | No data available | No data available | No data available | No data available | Respiratory system |
| Manganese 7439-96-5 | No data available | No data available | No data available | No data available | Blood; Central nervous system; Respiratory system; Kidney |
| Silicon 7440-21-3 | No data available | No data available | No data available | No data available | Skin; Eyes; Respiratory system |
| Quartz 14808-60-7 | No data available | No data available | No data available | No data available | Eyes; Respiratory system |
| Calcium carbonate 1317-65-3 | No data available | No data available | No data available | No data available | Skin; Eyes; Respiratory system |
| Molybdenum 7439-98-7 | No data available | No data available | No data available | No data available | Eyes; Respiratory system; Liver; Kidney |
| Zirconium oxide 1314-23-4 | No data available | No data available | No data available | No data available | Skin; Respiratory system |
| Nickel 7440-02-0 | No data available | No data available | No data available | No data available | Lungs; Nasal Cavities; Skin |
| Aluminum 7429-90-5 | No data available | No data available | No data available | No data available | Skin; Eyes; Respiratory system |
| Copper 7440-50-8 | No data available | No data available | No data available | No data available | Skin; Eyes; Respiratory system; Liver; Kidney |

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | ACGIH | IARC | NTP | OSHA | Other |
|---|---|---|---|---|---|
| Titanium dioxide 13463-67-7 | not applicable | Group 2B | not applicable | X | not applicable |
| Quartz 14808-60-7 | A2 | Group 1 | Known | X | not applicable |
| Nickel 7440-02-0 | not applicable | Group 2B | Known Reasonably Anticipated | X | not applicable |

## 12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

| Component | Toxicity to Algae | Toxicity to Fish | Microtox | Crustacea | Partition coefficien |
|---|---|---|---|---|---|
| Nickel | EC50 = 0.18 mg/L Pseudokirchneriella subcapitata 72 h EC50 0.174 - 0.311 mg/L Pseudokirchneriella subcapitata 96 h | LC50 > 100 mg/L Brachydanio rerio 96 h LC50 = 1.3 mg/L Cyprinus carpio 96 h LC50 = 10.4 mg/L Cyprinus carpio 96 h | No information available | 100: 48 h Daphnia magna mg/L EC50 1: 48 h Daphnia magna mg/L EC50 Static | N/A |
| Copper | EC50 0.0426 - 0.0535 mg/L Pseudokirchneriella subcapitata 72 h EC50 0.031 - 0.054 mg/L Pseudokirchneriella subcapitata 96 h | LC50 0.0068 - 0.0156 mg/L Pimephales promelas 96 h LC50 < 0.3 mg/L Pimephales promelas 96 h LC50 = 0.2 mg/L Pimephales promelas 96 h LC50 = 0.052 mg/L Oncorhynchus mykiss 96 h LC50 = 1.25 mg/L Lepomis | No information available | 0.03: 48 h Daphnia magna mg/L EC50 Static | N/A |

| | | | | | |
|---|---|---|---|---|---|
| | | macrochirus 96 h<br>LC50 = 0.3 mg/L Cyprinus carpio 96 h<br>LC50 = 0.8 mg/L Cyprinus carpio 96 h<br>LC50 = 0.112 mg/L Poecilia reticulata 96 h | | | |

**Persistence and Degradability** No information available.
**Bioaccumulation** No information available.
**Mobility** No information available.

## 13. DISPOSAL CONSIDERATIONS

**Product Disposal** Dispose of in accordance with local regulations.
**Container Disposal** Empty containers should be taken for local recycling, recovery, or waste disposal.

## 14. TRANSPORT INFORMATION

**DOT** Not regulated

**TDG** Not regulated

**ICAO** Not regulated

**IATA** Not regulated

**IMDG/IMO** Not regulated

## 15. REGULATORY INFORMATION

**Inventories**
**TSCA** Complies
**DSL** Complies

**U.S. Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

**SARA 311/312 Hazardous Categorization**

| Acute Health Hazard | Chronic Health Hazard | Fire Hazard | Sudden Release of Pressure Hazard | Reactive Hazard |
|---|---|---|---|---|
| Yes | No | No | No | No |

**CERCLA** None

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|---|---|---|
| Nickel | 100 lb | Not applicable |
| Copper | 5000 lb | Not applicable |

**U.S. State Regulations**
**California Proposition 65** This product contains the following Proposition 65 chemicals:

| Component | CAS No. | California Prop. 65 |
|---|---|---|
| Quartz | 14808-60-7 | carcinogen |
| Nickel | 7440-02-0 | carcinogen |

## 16. OTHER INFORMATION

**Prepared By** Christopher Drogin
**Supercedes Date** 07/12/2013
**Issuing Date** 01/26/2017
**Reason for Revision** No information available.
**Glossary** No information available.
**List of References.** No information available.

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