

Product Name: 172 Standard Weld Metal with NP Starting Powder
Revision Date: 1 August 2011 (rev 3)
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SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: 172 Standard Weld Metal with NP Starting Powder

Product Description: Exothermic mixture that produces molten metal, intended for making permanent connections.

Intended Use: Exothermic welds for connectors

COMPANY IDENTIFICATION

Supplier: BURNDY LLC
47 East Industrial Park Drive
Manchester, NH 03109 USA

24 Hour Emergency (INFOTRAC) (800) 535-5053 (US and Canada)
(352) 323-3500 (International)
Burndy Informational Number (603) 647-5000

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION

Health	Environmental	Physical
•Acute Toxicity - Oral, Category 4 •Skin Irritation - Category 3 •Eye Irritation - Category 2B •Skin Sensitization - Category 1 •Target Organ System Toxicity - Single Exposure, Category 3 •Target Organ System Toxicity - Repeated Exposure, Category 2	•Acute Toxicity - Category 1 •Chronic Toxicity - Category 1	•Flammable Solids - Category 1

LABELLING

Symbols:



Flame



Health Hazard



Environmental
Hazard

Signal Word: Warning

Hazard Statements

- H 228: Flammable Solid
- H 302: Harmful if swallowed
- H 316: Causes mild skin irritation
- H 317: May cause an allergic skin reaction
- H 320: Causes eye irritation
- H 335: May cause respiratory irritation
- H 373: May cause damage to organs (liver, kidney) through prolonged or repeated

Precautionary Statements

- P 210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P 240: Ground/bond container and receiving equipment.
- P 241: Use explosion-proof electrical / ventilating / lighting / equipment.
- P 261: Avoid breathing dust/fume/gas/mist/vapors/spray
- P 270: Do not eat, drink or smoke when using this product.
- P 271: Use only outdoors or in a well-ventilated area

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exposure •H 410: Very Toxic to aquatic life with long lasting effects	•P 264: Wash thoroughly after handling •P 273: Avoid release to the environment •P 280: Wear protective gloves/clothing
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Reportable Hazardous Substance(s) or Complex Substance(s)**

Name	Common Name/Synonym	CAS#	Percentage	Impurities
172 Standard Metal Weld				
Cuprous oxide	Copper(I) Oxide, Copper Brown, Copper Monoxide, Perenex	1317-39-1	60 – 90	None Known
Copper	Copper metal dusts, Copper Bronze	7440-50-8	7 – 13	None Known
Aluminum (fume or dust)	Elemental Aluminum	7429-90-5	7 – 13	None Known
Calcium Fluoride	Fluorite, calcium difluoride, Liparite	7789-75-5	1 – 5	None Known
Tin	Tin Powder	7440-31-5	1 – 5	None Known
Iron oxide, black	Ferrous or ferric oxide	1317-61-9	1 – 5	None Known
Calcium Silicon		Mixture	1 – 5	None Known
NP Starting Powder				
Cupric oxide	Copper(II) Oxide	1317-38-0	15 – 40	None Known
Aluminum (fume or dust)	Elemental Aluminum	7429-90-5	30 – 60	None Known
Iron oxide, black	Ferrous or ferric oxide	1317-61-9	15 - 40	None Known

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST AID MEASURES

ROUTES OF ENTRY: Inhalation, Ingestion, Contact

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: Breathing airborne particles or dust may cause irritation to respiratory tract. Remove affected person to fresh air. If symptoms persist, consult a physician.

Eye Contact: Direct contact can cause eye irritation. For eye contact remove contacts if affected person is wearing them. Irrigate eyes for 15 minutes with clean water. If symptoms persist, consult a physician.

Skin/Eye Contact: Prolonged contact may lead to irritation of skin. For skin contact: Remove contaminated clothing, launder before reuse. Wash affected area with soap and water. Treat burns from molten material with standard first aid methods.

Ingestion: May cause gastric distress, stomach pains, vomiting, and diarrhea. Give 2 glasses of water for dilution. Do not induce vomiting unless directed by physician. Never give anything by mouth to an unconscious victim.

SECTION 5 FIRE FIGHTING MEASURES**EXTINGUISHING MEDIA**

Appropriate Extinguishing Media: Use dry sand, graphite powder, dolomite, dry sodium chloride based

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extinguisher. Water spray can be used after reaction is complete.

Inappropriate Extinguishing Media: Water can cause heating of aluminum powder.

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Firefighters must wear full face piece self-contained breathing apparatus in positive pressure mode. Water may be used from a distance once reaction is complete. Molten metal contact with water can produce pockets of superheated steam.

Unusual Fire Hazards / Combustion Products: Fires may produce dense smoke and hazardous metal oxide gases.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Steps to be taken: Confine and segregate material for reuse. If material cannot be re-used, place material in appropriate disposal container.

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for firefighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

ENVIRONMENTAL PRECAUTIONS

Copper and Aluminum can be serious marine pollutants. Prevent entry into waterways, sewer, basements or confined areas. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. The National Response Center can be reached at (800) 424-8802.

CLEAN UP AND CONTAINMENT METHODS

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Use caution, aluminum powder can generate heat on contact with water. Avoid breathing vapors/fumes/dusts and wear specific protective equipment specified in section 8. Use clean non-sparking tools to collect material and segregate material for reuse. If material cannot be reused place material in appropriate disposal container.

Spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

SECTION 7 HANDLING AND STORAGE

Handling Procedures and Equipment

Protect against physical damage. Do not tamper with valve. Keep away from ignition sources. Do not spray in eyes, inhale vapors, or ingest. Use product only in well ventilated areas. Wash hands before eating, drinking, and/or smoking. Read product label for additional information. Prior to use, personnel should be trained by appropriate representative knowledgeable of the material. Improper use can lead to exposure of molten metal and reaction by-products.

Storage Requirements

Storage of material should be in a clean dry area with secure access. Do not subject material to rough

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handling, excessive vibrations, or physical damage. Store in accordance with labeling on box. Protect from weather and moisture. Do not use products that have been exposed to moisture. Keep away from children.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Component Name	CAS #	TWA/STEL	OSHA	ACGIH	Note
Cuprous oxide	1317-39-1	TWA	1.0 mg/m ³ (fume) 1.0 mg/m ³ (dust)	0.2 mg/m ³ (fume)	N/A
Copper	7440-50-8	TWA	1.0 mg/m ³	1.0 mg/m ³	N/A
Aluminum (fume or dust)	7429-90-5	TWA	5.0 mg/m ³ (fume) 15.0 mg/m ³ (dust)	5.0 mg/m ³ (fume) 10.0 mg/m ³ (dust)	N/A
Calcium Fluoride	7789-75-5	TWA	2.5 mg/m ³ (fume)	2.5 mg/m ³ (fume)	N/A
Tin	7440-31-5	TWA	2.0 mg/m ³	2.0 mg/m ³	N/A
Iron oxide, black	1317-61-9	TWA	10.0 mg/m ³ (fume) 10.0 mg/m ³ (dust)	5.0 mg/m ³ (fume)	N/A
Calcium Silicon	Mixture	TWA	Not established	Not established	N/A
Cupric oxide	1317-38-0	TWA	1.0 mg/m ³ (fume) 1.0 mg/m ³ (dust)	0.2 mg/m ³ (fume)	N/A

ENGINEERING CONTROLS

Use local and/or mechanical general exhaust ventilation to remove chemical vapors, keep exposures below occupational exposure limits, and maintain air quality. Local exhaust ventilation is preferred.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: NIOSH approved respirator designed to remove airborne particulate present in excess of maximum allowable concentrations due to secondary operations such as mixing, spraying, sanding, buffing, etc.

Hand Protection: Neoprene or rubber gloves may be used when handling product.

Eye Protection: Safety glasses with side shields recommended when handling product for intended use.

Skin and Body Protection: No protection is ordinarily required under normal conditions of use. If prolonged or repeated contact is likely protective clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

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SECTION 9	PHYSICAL/CHEMICAL PROPERTIES
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Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Solid/granules

Color: 172 Standard Weld Metal: Gray/silver. NP Starting Powder: Black/silver.

Odor: Characteristic odor for both materials.

Odor Threshold: Not Available

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Flash Point [Method]: Not Applicable

Flammability: Flammable Solid (Aluminum powder)

Flammable Limits (Approximate volume % in air): Not Applicable

Autoignition Temperature: Not Available

Decomposition Temperature: Not Available

Boiling Point/Range: Not Applicable

Melting/Freezing Point: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density (Air = 1): Not Applicable

Solubility in Water: Insoluble

Specific Gravity (Water = 1): Approximately 6.0

% Volatile: Not Applicable

Evaporation Rate (n-butyl acetate = 1): Not Applicable

Viscosity: Not Applicable

Partition Coefficient (n-Octanol/Water): Not Available

pH: Not Applicable

Pour Point: Not Applicable

Molecular Weight: Not Available

Molecular Formula: Mixture

SECTION 10	STABILITY AND REACTIVITY
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STABILITY: Product is stable under normal conditions.

CONDITIONS TO AVOID: Extreme heat about ignition point. Contact with water or excess moisture may produce reaction.

INCOMPATABILITY: Strong oxidizers, strong acids

HAZARDOUS DECOMPOSITION: Decomposition will not occur if handled properly.

POSSIBILITY OF HAZARDOUS REACTIONS: None are known.

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SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY VALUES

Ingredient	LD ₅₀ /LC ₅₀ Route and Species	Conclusion / Remarks
Cuprous oxide	LD ₅₀ : 470 mg/kg, Rat Oral 380 mg/kg, Mouse Intraperitoneal	Current toxicology (1993) AIHA Journal (1969).
Copper	LD ₅₀ : 3.5 mg/kg, Mouse Intraperitoneal LDL ₀ : 375 mg/kg, Rabbit Subcutaneous	Patty's Industrial Hygiene and toxicology (1981), American Journal of Pathology.
Aluminum (fume or dust)	LD ₅₀ : > 15900 mg/kg, Rat Oral	OECD Guideline 401
Calcium Fluoride	LD ₅₀ : 4250 mg/kg, Rat Oral >1500 mg/kg, Rat Intraperitoneal	Journal of the Academy of Medical Sciences of the USSR (1977), US Atomic Energy Commission (1951).
Tin	LD ₅₀ : >2000 mg/kg, Rat Oral	N/A
Iron oxide, black	LD ₅₀ : >15g/kg, Rat Oral	World Health Organization (2004)
Calcium Silicon	LD ₅₀ : >5000 mg/kg, Rat Oral	Based on calcium silicon compounds.
Cupric oxide	LDL ₀ : 278 mg/kg, Rat Intratracheal	Toxicology of New Industrial Chemical Substances.

ACUTE EFFECTS

Eye Contact: Direct contact with product or fumes can cause eye irritation.

Skin Contact: Prolonged contact may lead to irritation of skin.

Inhalation: Breathing airborne particles or dust may cause irritation to respiratory tract. If airborne levels exceed maximum allowable limits, NIOSH approved respirator required.

Ingestion: May cause gastric distress, stomach pains, vomiting, and diarrhea.

Additional Target Organ Effects: Renal and hepatic toxicity.

Medical Conditions Aggravated by Exposure: Preexisting skin, eye or respiratory disorders may become aggravated through prolonged exposure.

CHRONIC/OTHER EFFECTS

Product is an eye, skin, and respiratory irritant. Products containing tin can cause allergic contact dermatitis, there are also some reports of skin sensitization from exposure. Acute copper poisoning after ingestion can cause liver injury, methemoglobinemia, and hemolytic anemia. Acute renal failure may result, secondary to massive hemoglobinuria. Iron oxides fumes can cause metal fume fever, and prolonged inhalation can cause damage to the liver and kidneys. Components in this product are not listed as carcinogens classifiable with regards to carcinogenicity in humans.

Additional information may be available by request.

Carcinogenicity: IARC: NO ACGIH: NO NTP: NO OSHA Regulated: NO

The following ingredients are cited on the lists below: None

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

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SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

<u>Ingredient</u>	<u>LC₅₀ and Species</u>	<u>Conclusion / Remarks</u>
Cuprous oxide	75 ug/L / 96 hr., <i>Danio rerio</i> (Zebra Danio Fish) 173 ug/L / 96 hr., <i>Cyprinodon variegatus</i> (Sheepshead minnow)	Highly toxic to these aquatic species.
Copper	5.08 ug/L / 96 hr., <i>Pimphales promelas</i> (Fathead Minnow) 125 ug/L / 96 hr., <i>Salmo ocellatus</i> (Atlantic Salmon)	Very highly toxic to species.
Aluminum (fume or dust)	1.13 mg/L / 96 hr. Cobitidae (Loach Family)	Moderately toxic to species
Calcium Fluoride	Not Available	N/A
Tin	NOEC: 66.2 ug/L / 96 hr., <i>Pimphales promelas</i> (Fathead Minnow)	No acute toxicity observed
Iron oxide, black	>10,000 mg/L / 24 hr., <i>Gambusia affinis</i> (Western mosquitofish)	Static bioassay. Similar material ferrous oxide.
Calcium Silicon	Not Available	N/A
Cupric oxide	25.4 mg/L / 96 hr., <i>Oncorhynchus mykiss</i> (Rainbow Trout) 460.0 ug/L / 96 hr., <i>Morone saxatilis</i> (Striped Bass)	Slightly toxic to adult rainbow trout. Highly toxic to immature Striped Bass.

Environmental Fate

There is limited data regarding the mobility, degradability, and potential for bioconcentration in aquatic species for the ingredients of this product. Evidence suggests that copper does not have significant mobility in soil unless under acidic conditions. Copper and copper oxides can be highly toxic to aquatic species. Aluminum contamination can be toxic to aquatic species. Industrial products should not be discharged to sewers or other water sources to prevent the risks of long term adverse effects and environmental contamination.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable Local, State and Federal laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Avoid discharge into natural waters. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in soil or water; effects on animal, aquatic, and plant life; and conformance with environmental and public health regulations.

REGULATORY DISPOSAL INFORMATION

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-List: None listed

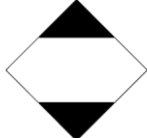
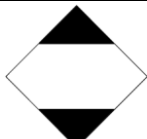
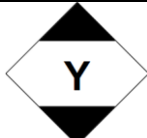
RCRA U-List: None listed

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SECTION 14	TRANSPORTATION
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Regulatory Information	UN Number	Proper Shipping Name	Hazard Class	Packing Group	Label(s)	RQ	Additional Information
US DOT	UN3089	Metal powders, flammable, n.o.s. (Aluminum, Copper)	4.1	II		5,000 Lbs (Copper)	
							May be offered as a Limited Quantity (See 49CFR173.151)
TDG	UN3089	Metal powder, flammable, n.o.s. (Aluminum, Copper)	4.1	II			
							May be offered as a Limited Quantity (See TDG Schedule 1)
ADR	UN3089	Metal powders, flammable, n.o.s. (Aluminum, Copper)	4.1	II			
							May be offered as a Limited Quantity (See ADR Table A)
IATA	UN3089	Metal powder, flammable, n.o.s. (Aluminum, Copper)	4.1	II			
							May be offered as a Limited Quantity (See IATA PI Y415)
IMDG	UN3089	Metal powders, flammable, n.o.s. (Aluminum, Copper) Marine Pollutant	4.1	II	 		Copper is a severe marine pollutant

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SECTION 15	REGULATORY INFORMATION
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OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Yes

SARA (313) TOXIC RELEASE INVENTORY: 7429-90-5 Aluminum (fume or dust)
N100 Copper compounds

CALIFORNIA PROP 65: This product contains no chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

INTERNATIONAL REGULATIONS:

WHMIS CLASSIFICATION

Class B4: Flammable Solid
Class D2A: Chronic Toxic Effects
Class D2B: Skin/Eye Irritant

WHMIS HAZARD SYMBOLS



EUROPEAN INVENTORY OF EXISTING CHEMICALS (EINECS):

Chemical Name	CAS Number	EINECS Number
Cuprous oxide	1317-39-1	215-270-7
Copper	7440-50-8	7440-50-8
Aluminum (fume or dust)	7429-90-5	7429-90-5
Calcium Fluoride	7789-75-5	232-188-7
Tin	7440-31-5	231-141-8
Iron oxide, black	1317-61-9	Not Assigned
Calcium Silicon	Mixture	Not Assigned
Cupric oxide	1317-38-0	Not Assigned

EU RISK (R) AND SAFETY (S) PHRASES:

R 10: Flammable
R 22: Harmful if swallowed
R 36/37/38: Irritating to the eyes, respiratory system, and skin
R 40: Possible risks of irreversible effects
R 50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
S 16: Keep away from sources of ignition - No Smoking
S 20: When using do not eat or drink
S 22: Do not breathe the dust.
S 61: Avoid release to the environment

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The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
Cuprous oxide	1317-39-1	1,4
Copper	7440-50-8	1,4
Aluminum (fume or dust)	7429-90-5	1,4
Calcium Fluoride	7789-75-5	
Tin	7440-31-5	1,4
Iron oxide, black	1317-61-9	1,4
Calcium Silicon	Mixture	1,4
Cupric oxide	1317-38-0	1,4

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health - 2 Flammability - 3 Reactivity - 1

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS) RATINGS:

Health - 2 Flammability - 3 Physical Hazard - 1 PPE - H

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Date	Description	Sections Affected
2/13/08	Rev 1	
6/2/11	Rev 2	Sec 11, Transportation
8/1/11	Rev 3	All

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