

Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings per ASME B16.22
by Copper Development Association

Health Product
Declaration v2.2

created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 28718

CLASSIFICATION: 22 10 00 Plumbing Piping

PRODUCT DESCRIPTION: Copper fittings, as manufactured by a Copper Development Association member, per ASME B16.22. ASME B16.22 establishes specifications for wrought copper and wrought copper alloy, solder-joint, seamless fittings, designed for use with seamless copper tube conforming to ASTM B88 (water and general plumbing systems), B280 (air conditioning and refrigeration service), and B819 (medical gas systems), as well as fittings intended to be assembled with soldering materials conforming to ASTM B32, brazing materials conforming to AWS A5.8, or with tapered pipe thread conforming to ASME B1.20.1. These materials may be used as finished products or as part of larger products or systems. In the latter case, the materials do not experience any chemical changes; rather, they are physically altered to meet the application requirements. Additional Classifications can be found in Section 5: General Notes.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format	Threshold Level	Residuals/Impurities	<i>All Substances Above the Threshold Indicated Are:</i> Characterized ☐ Yes Ex/SC ☒ Yes ☐ No <i>% weight and role provided for all substances.</i> Screened ☐ Yes Ex/SC ☒ Yes ☐ No <i>All substances screened using Priority Hazard Lists with results disclosed.</i> Identified ☐ Yes Ex/SC ☒ Yes ☐ No <i>All substances disclosed by Name (Specific or Generic) and Identifier.</i>
☒ Nested Materials Method	☐ 100 ppm	Considered in 3 of 3 Materials	
☐ Basic Method	☐ 1,000 ppm	Explanation(s) provided for Residuals/Impurities?	
Threshold Disclosed Per	☐ Per GHS SDS	☒ Yes ☐ No	
☐ Material	☒ Other		
☒ Product			

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

MATERIAL | SUBSTANCE | RESIDUAL OR IMPURITY
GREENSCREEN SCORE | HAZARD TYPE
UNS C12200 COPPER ALLOY [COPPER LT-UNK PHOSPHORUS BM-2 | MAM | PHY] UNS C10200 COPPER ALLOY [COPPER LT-UNK OXYGEN LT-UNK | PHY] UNS C12000 COPPER ALLOY [COPPER LT-UNK PHOSPHORUS BM-2 | MAM | PHY]

Number of Greenscreen BM-4/BM3 contents ... 0
Contents highest concern GreenScreen Benchmark or List translator Score ... LT-UNK
Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [MetalAlloy]. The product formulation was created using the ASTM standard to identify acceptable copper alloys. The formulation of each of these alloys was generated from the UNS designation, as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. The specific material formulation should be obtained directly from the manufacturer of the product chosen. Metal alloys have different intrinsic characteristics than their alloying elements encapsulated therein, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. All GreenScreen BenchMark scores are supplied by the Pharos database.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE See Section 3 for additional listings.

VOC emissions: Inherently non-emitting source per LEED

CONSISTENCY WITH OTHER PROGRAMS

No pre-checks completed or disclosed

Third Party Verified?

- ☒ Yes
☐ No

PREPARER: Self-Prepared

VERIFIER: WAP Sustainability Consulting

VERIFICATION #: zPr-13726

SCREENING DATE: 2021-10-26

PUBLISHED DATE: 2022-06-16

EXPIRY DATE: 2024-10-26

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.2, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-2-standard

%: 100.0000 - 100.0000

RESIDUALS AND IMPURITIES CONSIDERED: Yes

MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This includes O-free Cu which contains P in an amount agreed upon.

ID: 7440-50-8

HAZARD SCREENING DATE: 2021-10-26 11:56:22

GS: LT-UNK

NANO: No

SUBSTANCE ROLE: Alloy element

WARNINGS

No warnings found on HPD Priority Hazard Lists

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Recycled content is expected to be utilized in the production of the product. However, please contact the manufacturer for specific utilization rates. Source of Pre Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Source of Post Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

ID: 7723-14-0

HAZARD SCREENING DATE: 2021-10-26 11:56:22

NANO: No

SUBSTANCE ROLE: Alloy element

WARNINGS

Extremely Hazardous Substances

H228 - Flammable solid [Flammable solids - Category 1 or 2]

SUBSTANCE NOTES:

%: 100.0000 - 100.0000

RESIDUALS AND IMPURITIES CONSIDERED: Yes

MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product stand and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS except for Alloy C10100 which has a minimum conductivity of 101% IACS.

COPPER

ID: 7440-50-8

HAZARD SCREENING METHOD: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2021-10-26 12:49:09		
%: 99.9500 - 100.0000	GS: LT-UNK	RC: Both	NANO: No	SUBSTANCE ROLE: Alloy element
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
None found			No warnings found on HPD Priority Hazard Lists	

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Recycled content is expected to be utilized in the production of the product. However, please contact the manufacturer for specific utilization rates. Source of Pre Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Source of Post Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

OXYGEN

ID: 7782-44-7

HAZARD SCREENING METHOD: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2021-10-26 12:50:20		
%: 0.0000 - 0.0010	GS: LT-UNK	RC: UNK	NANO: No	SUBSTANCE ROLE: Alloy element
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1		H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]	

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C12000 COPPER ALLOY

%: 100.0000 - 100.0000

PRODUCT THRESHOLD: Other	RESIDUALS AND IMPURITIES CONSIDERED: Yes	MATERIAL TYPE: Metal
RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition		

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial.

COPPER			ID: 7440-50-8		
HAZARD SCREENING METHOD: Pharos Chemical and Materials Library			HAZARD SCREENING DATE: 2021-10-26 12:53:12		
%: 99.9000 - 100.0000		GS: LT-UNK	RC: Both	NANO: No	SUBSTANCE ROLE: Alloy element
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS		
None found		No warnings found on HPD Priority Hazard Lists			
SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Recycled content is expected to be utilized in the production of the product. However, please contact the manufacturer for specific utilization rates. Source of Pre Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Source of Post Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).					

PHOSPHORUS			ID: 7723-14-0		
HAZARD SCREENING METHOD: Pharos Chemical and Materials Library			HAZARD SCREENING DATE: 2021-10-26 12:54:17		
%: 0.0040 - 0.0120		GS: BM-2	RC: UNK	NANO: No	SUBSTANCE ROLE: Alloy element
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS		
MAM	US EPA - EPCRA Extremely Hazardous Substances		Extremely Hazardous Substances		
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1		H228 - Flammable solid [Flammable solids - Category 1 or 2]		
SUBSTANCE NOTES:					

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS	Inherently non-emitting source per LEED		
CERTIFYING PARTY: Self-declared	ISSUE DATE: 2021-10-	EXPIRY DATE:	CERTIFIER OR LAB: N/A
APPLICABLE FACILITIES: All	26		
CERTIFICATE URL:			
CERTIFICATION AND COMPLIANCE NOTES:			

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

Substance ranges within the HPD are due to the variability in the UNS formulations. This HPD is meant to provide likely formulations of wrought copper and copper alloy solder-joint pressure fittings based on the ASME B16.22 standard and lists the copper alloy(s) referenced in that standard. Manufacturers should be contacted to obtain a true disclosure for the product in question. A list of Copper Development Association members can be found at <https://www.copper.org/about/cda-members.html>. Please see <https://www.copper.org/applications/plumbing/cth/> for more information available in the Copper Tube Handbook, a comprehensive resource for engineers, plumbers, HVAC technicians and contractors to obtain information about copper tube, piping and fittings, as well as different joining methods and applications. Related Construction Specifications Institute MasterFormat designations include the following. These are provided as a general guideline; others sections may apply: 21 13 13 Wet-Pipe Sprinkler Systems, 21 13 16 Dry-Pipe Sprinkler Systems, 21 13 19 Preaction Sprinkler Systems, 21 13 23 Combined Dry-Pipe and Preaction Sprinkler Systems, 21 13 26 Deluge Fire-Suppression Sprinkler Systems, 21 13 29 Water Spray Fixed Systems, 21 13 36 Antifreeze Sprinkler Systems, 22 11 13 Facility Water Distribution Piping, 22 11 16 Domestic Water Piping, 22 06 10 Schedules for Plumbing Piping and Pumps, 22 11 19 Domestic Water Piping Specialties, 22 13 16 Sanitary Waste and Vent Piping, 22 13 19 Sanitary Waste Piping Specialties, 22 14 13 Facility Storm Drainage Piping, 22 14 16 Rainwater Leaders, 22 51 13 Swimming Pool Piping, 22 52 13 Fountain Piping, 22 61 13 Compressed Air Piping for Laboratory and Healthcare Facilities, 22 62 13 Vacuum Piping for Laboratory and Healthcare Facilities, 22 63 13 Gas Piping for Laboratory and Healthcare Facilities, 22 67 13 Processed Water Piping for Laboratory and Healthcare Facilities, 23 06 10 Schedules for Facility Fuel Service Systems, 23 06 20 Schedules for HVAC Piping and Pumps, 23 11 13 Facility Fuel-Oil Piping, 23 11 23 Facility Natural-Gas Piping, 23 11 26 Facility Liquefied-Petroleum Gas Piping, 23 21 13 Hydronic Piping, 23 22 13 Steam and Condensate Heating Piping, 23 23 13 Refrigerant Piping Valves, 23 23 16 Refrigerant Piping Specialties, 23 23 19 Refrigerant Safety Relief Valve Discharge Piping, 33 05 17 Copper Utility Pipe and Tubing, 33 14 13 Public Water Utility Distribution Piping, 33 14 16 Site Water Utility Distribution Piping, 33 14 17 Site Water Utility Service Laterals, 40 05 17 Copper Process Pipe and Tubing.

MANUFACTURER INFORMATION

MANUFACTURER: Copper Development Association
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McLean VA 22102, USA
WEBSITE: copper.org

CONTACT NAME: Erin Smith
TITLE: Project Manager, Material Stewardship (US)
PHONE: 212-251-7247
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The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY**Hazard Types**

AQU Aquatic toxicity	LAN Land toxicity	PHY Physical hazard (flammable or reactive)
CAN Cancer	MAM Mammalian/systemic/organ toxicity	REP Reproductive
DEV Developmental toxicity	MUL Multiple	RES Respiratory sensitization
END Endocrine activity	NEU Neurotoxicity	SKI Skin sensitization/irritation/corrosivity
EYE Eye irritation/corrosivity	NF Not found on Priority Hazard Lists	UNK Unknown
GEN Gene mutation	OZO Ozone depletion	
GLO Global warming	PBT Persistent, bioaccumulative, and toxic	

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)	LT-1 List Translator 1 (Likely Benchmark-1)
BM-3 Benchmark 3 (use but still opportunity for improvement)	LT-UNK List Translator Benchmark Unknown (the chemical is present on at least one GreenScreen Specified List, but the information contained within the list did not result in a clear mapping to a LT-1 or LTP1 score.)
BM-2 Benchmark 2 (use but search for safer substitutes)	
BM-1 Benchmark 1 (avoid - chemical of high concern)	
BM-U Benchmark Unspecified (due to insufficient data)	
LT-P1 List Translator Possible 1 (Possible Benchmark-1)	NoGS No GreenScreen.

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology

Third Party Verified Verification by independent certifier approved by HPDC

Preparer Third party preparer, if not self-prepared by manufacturer

Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.