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

Health Product Declaration v2.1

created via: HPDC Online Builder

CLASSIFICATION: N/A

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.

Section 1: Summary — Basic Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- ○ Nested Materials Method
- ◉ Basic Method

Threshold Disclosed Per
- ○ Material
- ◉ Product

Threshold level
- ○ 100 ppm
- ◉ 1,000 ppm
- ○ Per GHS SDS
- ○ Per OSHA MSDS
- ○ Other

Residuals/Impurities
- ◉ Considered
- ○ Partially Considered
- ○ Not Considered

Explanation(s) provided for Residuals/Impurities?
- ◉ Yes ○ No

Are All Substances Above the Threshold Indicated:

Characterized ◉ Yes ○ No
Percent Weight and Role Provided?

Screened ◉ Yes ○ No
Using Priority Hazard Lists with Results Disclosed?

Identified ◉ Yes ○ No
Name and Identifier Provided?

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

WROUGHT COPPER AND COPPER ALLOY SOLDER-JOINT PRESSURE FITTINGS PER ASME B16.22 [COPPER LT-UNK PHOSPHORUS BM-2 | PHY | MAM *SILVER* BM-1 | MUL OXYGEN LT-UNK | PHY]

Number of Greenscreen BM-4/BM3 contents ... 0

Contents highest concern GreenScreen Benchmark or List translator Score ... BM-1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Product chemistry defined in ASME B16.22 (http://www.asme.org/products/codes-standards/b1622-2018-wrought-copper-copper-alloy) and by UNS alloy designations referenced therein (http://unscopperalloys.org/wrought/coppers.php)

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

Pre-checked for LEED v4 Material Ingredients, Option 1

Third Party Verified?
- ◉ Yes
- ○ No

PREPARER: Self-Prepared
VERIFIER: WAP Sustainability Consulting
VERIFICATION #: zPr-6679

SCREENING DATE: 2018-10-26
PUBLISHED DATE: 2018-10-26
EXPIRY DATE: 2021-10-26

Section 2: Content in Descending Order of Quantity

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 2.1, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-1-standard

WROUGHT COPPER AND COPPER ALLOY SOLDER-JOINT PRESSURE FITTINGS PER ASME B16.22

PRODUCT THRESHOLD: 1000 ppm

RESIDUALS AND IMPURITIES CONSIDERED: Yes

RESIDUALS AND IMPURITIES NOTES: Per ASME B16.22, the fittings shall be produced from coppers that conform to the Unified Numbering System (UNS) chemical composition requirements for C10200, C12000 or C12200 alloys (see unscopperalloys.org). C10200, C12000 and C12200 characterize copper as "copper + silver". Silver is not intentionally added and may only be present as a residual of the process by which raw material (i.e., copper ore) is refined. However, due to the high value of silver, refining operations prioritize its removal to the highest extent practical.

OTHER PRODUCT NOTES: none

COPPER

ID: 7440-50-8

%: 99.9000 - 99.9500 | GS: LT-UNK | RC: Both | NANO: No | ROLE: Primary ingredient

HAZARDS:	AGENCY(IES) WITH WARNINGS:
None Found	No warnings found on HPD Priority lists

SUBSTANCE NOTES: Per ASME B16.22, the fittings shall be produced from coppers that conform to the Unified Numbering System (UNS) chemical composition requirements for C10200, C12000 or C12200 alloys (see unscopperalloys.org). C10200, C12000 and C12200 characterize copper as "copper + silver". Silver is not intentionally added and may only be present as a residual of the process by which raw material (i.e., copper ore) is refined. However, due to the high value of silver, refining operations prioritize its removal to the highest extent practical. C10200 requires a minimum copper percentage of 99.95, whereas both C12000 and C12200 require only a minimum copper percentage of 99.9. 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) 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

%: 0.0000 - 0.0400 | GS: BM-2 | RC: None | NANO: No | ROLE: Deoxidizer

HAZARDS:	AGENCY(IES) WITH WARNINGS:	
PHYSICAL HAZARD (REACTIVE)	EU - GHS (H-Statements)	H228 - Flammable solid
MAMMALIAN	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances

SUBSTANCE NOTES: Per ASME B16.22, the fittings shall be produced from coppers that conform to the Unified Numbering System (UNS) chemical composition requirements for C10200, C12000 or C12200 alloys (see unscopperalloys.org). The UNS phosphorus range for C12000 is 0.004–0.012. The UNS phosphorus range for C12200 is 0.015–0.040. Phosphorus is not intentionally added to C10200. The GreenScreen Assessment was performed by Rosenblum Environmental Consulting on 2/9/2014, updated on 2/29/2016, and can be found at https://www.pharosproject.net/uploads/files/gs/327570a0dd19e380225448283529221cee78d609.pdf.

SILVER

ID: 7440-22-4

%: **Impurity/Residual** GS: **BM-1** RC: **None** NANO: **No** ROLE: **Impurity/Residual**

HAZARDS:	AGENCY(IES) WITH WARNINGS:	
MULTIPLE	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters

SUBSTANCE NOTES: Per ASME B16.22, the fittings shall be produced from coppers that conform to the Unified Numbering System (UNS) chemical composition requirements for C10200, C12000 or C12200 alloys (see unscopperalloys.org). C10200, C12000 and C12200 characterize copper as "copper + silver". Silver is not intentionally added and may only be present as a residual of the process by which raw material (i.e., copper ore) is refined. However, due to the high value of silver, refining operations prioritize its removal to the highest extent practical. The GreenScreen Assessment was performed by NSF International on 1/10/2013, revised on 2/19/2015, and can be found at https://www.pharosproject.net/uploads/files/gs/66b94fbbd794b5e37bdeec8d321a3ec47cb6c44b.pdf.

OXYGEN

ID: 7782-44-7

%: **0.0000 - 0.0010** GS: **LT-UNK** RC: **None** NANO: **No** ROLE: **Alloy-limited element**

HAZARDS:	AGENCY(IES) WITH WARNINGS:	
PHYSICAL HAZARD (REACTIVE)	EU - GHS (H-Statements)	H270 - May cause or intensify fire; oxidiser (GAS ONLY)

SUBSTANCE NOTES: Per ASME B16.22, the fittings shall be produced from coppers that conform to the Unified Numbering System (UNS) chemical composition requirements for C10200, C12000 or C12200 alloys (see unscopperalloys.org). C10200 is an oxygen-free alloy with oxygen limits equal to 0.0010 percent.

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
APPLICABLE FACILITIES: All
CERTIFICATE URL:

ISSUE DATE: 2018-10-26

EXPIRY DATE: 2019-10-26

CERTIFIER OR LAB: Self-declared

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

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 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 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 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

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Copper Development Association**
ADDRESS: **7918 Jones Branch Dr. #300**
McLean VA 22102, USA
WEBSITE: **copper.org**

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EMAIL: **carrie.claytor@copperalliance.us**

KEY

OSHA MSDS Occupational Safety and Health Administration Material Safety Data Sheet
GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Hazard Types

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

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (insuficient data to benchmark)
LT-P1 List Translator Possible Benchmark 1
LT-1 List Translator Likely Benchmark 1
LT-UNK List Translator Benchmark Unknown (insufficient information from List Translator lists to benchmark)
NoGS Unknown (no data on List Translator Lists)

Recycled Types

PreC Preconsumer (Post-Industrial)
PostC Postconsumer
Both Both Preconsumer and Postconsumer
Unk Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms
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.