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

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

Are All Substances Above the Threshold Indicated:
- Characterized
  - Yes
  - No

Percent Weight and Role Provided?
- Yes
- No

Screened Using Priority Hazard Lists with Results Disclosed?
- Yes
- No

Identified Name and Identifier Provided?
- Yes
- No

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 | SILVER BM-1 | MUL OXYGEN LT-UNK | PHY ]

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

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
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](http://www.hpd-collaborative.org/hpd-2-1-standard)

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

<table>
<thead>
<tr>
<th>PRODUCT THRESHOLD: 1000 ppm</th>
<th>RESIDUALS AND IMPURITIES CONSIDERED: Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 &quot;copper + silver&quot;. 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.</td>
<td></td>
</tr>
</tbody>
</table>

**OTHER PRODUCT NOTES:** none

### COPPER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARDS: None Found</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENCY(IES) WITH WARNINGS: No warnings found on HPD Priority lists</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>%: 0.0000 - 0.0400</th>
<th>GS: BM-2</th>
<th>RC: None</th>
<th>NANO: No</th>
<th>ROLE: Deoxidizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARDS: EU - GHS (H-Statements) H228 - Flammable solid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENCY(IES) WITH WARNINGS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PHYSICAL HAZARD (REACTIVE) MAMMALIAN**

**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 C12000. 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](https://www.pharosproject.net/uploads/files/gs/327570a0dd19e380225448283529221cee78d609.pdf).

Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings per ASME B16.22
### SILVER

<table>
<thead>
<tr>
<th>%</th>
<th>GS</th>
<th>RC</th>
<th>NANO</th>
<th>ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impurity/Residual</td>
<td>BM-1</td>
<td>None</td>
<td>No</td>
<td>Impurity/Residual</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>%</th>
<th>GS</th>
<th>RC</th>
<th>NANO</th>
<th>ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0000 - 0.0010</td>
<td>LT-UNK</td>
<td>None</td>
<td>No</td>
<td>Alloy-limited element</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>CERTIFYING PARTY:</th>
<th>Self-declared</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLICABLE FACILITIES:</td>
<td>All</td>
</tr>
<tr>
<td>CERTIFICATE URL:</td>
<td></td>
</tr>
<tr>
<td>ISSUE DATE:</td>
<td>2018-10-26</td>
</tr>
<tr>
<td>EXPIRY DATE:</td>
<td>2019-10-26</td>
</tr>
<tr>
<td>CERTIFIER OR LAB:</td>
<td>Self-declared</td>
</tr>
</tbody>
</table>

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 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
MANUFACTURER INFORMATION

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

CONTACT NAME: Carrie Claytor
TITLE: Director of Health, Environment, and Sustainable Development
PHONE: 2122517220
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 (insufficient 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.