

RECORD OF REVISIONS

| Rev. | Date | Description | POC | RM |
|-------------|-------------|--|----------------------------------|-----------------------------|
| 0 | 9/17/2014 | Initial issue as section ASME-3. | Ari Ben Swartz, <i>ES-EPD</i> | Larry Goen, <i>ES-DO</i> |
| 1 | 9/22/2023 | Redesignation of attachment numbers and titles (formerly known as Section ASME - New ASME System Requirements, Attachment ASME-3 Category M Fluids). Added "No" where appropriate in table instead of (blank), some changes made to the introductory list. | Ari Ben Swartz, <i>ES-FE</i> | Dan Tepley, <i>ES-DO</i> |

Contact the Standards point of contact (POC) for upkeep, interpretation, and variance issues.

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| Chapter 17 | <u>Pressure Safety POC</u> |
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This document is online at <https://engstandards.lanl.gov>

This attachment defines fluid services designated as Category M at Los Alamos National Laboratory (LANL) per ASME B31.3 Process Piping¹. It also defines lethal substances for LANL per Boiler and Pressure Vessel (B&PV) Code Section VIII².

- Media that is not listed in the table means that a determination has not yet been made. If using a media missing from this list, written evaluation/determination shall be performed and reviewed by a pressure safety subject matter expert (SME) (with assistance from OSH-ISH if necessary) with concurrence by the owner with notification to the ESM Chapter 17 point of contact (POC) so the media can be added to this document.
- Media ID shown is not necessarily the operating system or system ID per Engineering Standards Manual (ESM) Chapter 1 Section 200- Item Numbering and Labeling.
- Some entries are too general to make a definitive determination as to their fluid category (e.g., calibration gas, hydraulic fluid, some acids/bases). The Safety Data Sheet for these types of media shall be reviewed by a pressure safety SME (with assistance from OSH-ISH if necessary) with concurrence by the owner to determine if they meet the Category M/Lethal criteria.
- Listings are generally sorted alphabetically by media.

Guidance: See B31.3 Appendix M, Guide to Classifying Fluid Services

¹ See ASME B31.3 paragraph 300.2 Definitions for "Fluid Service"

² See ASME B&PV Code Section VIII UW-2 paragraph (a) and footnote 1

Section PS-REQUIREMENTS

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Attachment REQ-1, Category M Fluid Service and Lethal Service

| Media | Cat M/Lethal? |
|---|--|
| acetylene | No |
| acid waste | Yes (for concentrated solutions) |
| argon | No |
| HCFC – 225g (cleaning fluid) | No |
| ammonia | No |
| anhydrous ammonia | Yes |
| air | No |
| aerozine 50 fuel | Yes |
| aluminum nitrate | No |
| breathing air | No |
| biological hazard (deadly) | Yes |
| boiler feed water | No |
| bromofluorobenzene | No |
| carbon tetrafluoride | No |
| calibration gas | Depends on the test gas |
| chlorobenzene | No |
| CAM sample air | No |
| caustic waste | No Yes (for concentrated solutions) |
| central circulating hot water return | No |
| central circulating hot water supply | No |
| central chilled water return | No |
| central chilled water supply | No |
| chemical injection (water systems) | No (depends on the chemical) |
| chlorine | Yes |
| chlorine gas | Yes |
| carbon dioxide | No |
| carbon monoxide | No |
| carbon tetrafluoride | No |
| chilled water | No |
| compressed air | No |
| condensate pump discharge | No |
| diborane (2%), argon bal | Yes |
| diesel | No |
| deionized water (incl. supply and return) | No |
| distilled water | No |
| drain | No |
| dri-train return | No |

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Attachment REQ-1, Category M Fluid Service and Lethal Service

| Media | Cat M/Lethal? |
|--|------------------------------------|
| dri-train supply | No |
| deuterium | No |
| house dry vacuum | No |
| process dry vacuum | No |
| ethylene glycol | No |
| fire suppression | No |
| fixed-head sample air | No |
| fluorine gas | Yes |
| fluorochlorobenzene | No |
| HFE – 7100 (cleaning fluid) | No |
| Freon (r12) dichlorodifluoromethane | No |
| monomethylhydrazine (MMH) fuel | Yes |
| fire protection water | No |
| gaseous hydrogen | No |
| gaseous nitrogen | No |
| gaseous oxygen | No |
| gasoline | No |
| Halon fire suppression | No |
| hydrogen sulfide | Yes |
| hydroxylamine nitrate | Yes |
| heating water return | No |
| heating water supply | No |
| high pressure steam (above 15 psig) | No |
| hydroxyisobutyric acid | No |
| hydrochloric acid | Yes |
| hydrocarbon liquid | |
| hydraulic fluid | Depends on the media reference SDS |
| gaseous helium | No |
| hydrogen fluoride | Yes |
| hydrofluoric acid | Yes |
| liquid helium | No |
| hydrogen chloride gas | Yes |
| hydrogen peroxide (H ₂ O ₂) | No |
| hydrofluoroether | No |
| hot water | No |
| hydrazine fuel | Yes |
| hazardous waste | Depends on the makeup of the waste |
| isopropyl alcohol | No |
| industrial waste | No |

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Attachment REQ-1, Category M Fluid Service and Lethal Service

| Media | Cat M/Lethal? |
|---|--|
| industrial water | No |
| instrument air | No |
| kerosene | No |
| krypton | No |
| limited-volume circulating chilled water return | No |
| limited volume circulating chilled water supply | No |
| liquid air | No |
| liquid hydrogen | No |
| liquid nitrogen | No |
| liquid oxygen | No |
| propane, butane | No |
| Lexsol heat transfer fluid | No |
| low-pressure condensate (15 psig or less) | No |
| low-pressure natural gas (less than 14 in. w.c.) | No |
| low-pressure steam (15 psig or less) | No |
| mercury | Yes |
| methyl alcohol | No |
| methane | No |
| Freon MF solvent | No |
| sodium hydroxide (NaOH) | Yes (for concentrated solutions) |
| natural gas | No |
| neopentane (2,2-dimethylpropane) | No |
| negative-pressure circulating chilled water return | No |
| negative-pressure circulating chilled water supply | No |
| neon | No |
| nitric acid | Yes (for concentrated solutions) |
| nitric oxide | No |
| nitrogen dioxide | Yes |
| nitrous oxide | No |
| dinitrogen tetroxide (N ₂ O ₄) | Yes |
| oil | No |
| P-10 (10% methane/90% argon) gas mix | No |
| phosphine | Yes |
| positive-pressure circulating chilled water return | No |
| positive-pressure circulating chilled water supply | No |
| potable water | No |
| potable hot water return | No |
| potassium hydroxide | Yes (for concentrated solutions) |

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Attachment REQ-1, Category M Fluid Service and Lethal Service

| Media | Cat M/Lethal? |
|--|--|
| process compressed air | No |
| process cooling water return | No |
| process cooling water supply | No |
| radioactive liquid waste | No |
| refrigerant liquid | No |
| refrigerant suction | No |
| regeneration gas | No |
| sodium carbonate | No |
| sodium citrate | No |
| sanitary sewer | No |
| sump pump discharge | No |
| sulfur hexafluoride (SF6) | No |
| sulfur dioxide | Yes |
| sulfuric acid | Yes (for concentrated solutions) |
| steam | No |
| Freon TF solvent | No |
| test gas (special types, mixes, etc.) | Depends on the test gas |
| trimethylamine 108 ppm | No |
| tower water drain | No |
| tower water return | No |
| tower water supply | No |
| treated water | No |
| tritium | No |
| unsymmetrical dimethyl hydrazine (UDMH) fuel | Yes |
| vacuum | No |
| vent header (to TA-55 zone 1 HVAC) | No |
| wet vacuum | No |
| water | No |
| zone 1 (TA-55 HVAC) | No |