

No.86 Applicable Standards for UR P4.7

(Feb 2005)
(Rev.1
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“Requirements for Type Approval of Plastic Pipes”

Table 1: Typical requirements for all systems

| | Test | Typical Standard | Notes |
|----|---------------------------------------|--|---|
| 1 | Internal pressure ⁽¹⁾ | P4.3.1.3(i), ASTM D1599, ASTM D2992, ISO 15493 or equivalent | Top, Middle, Bottom (of range) Tests are to be carried out on pipe spools made of different pipe sizes, fittings and pipe connections. |
| 2 | External pressure ⁽¹⁾ | P4.3.1.3(ii), ISO 15493 or equivalent | As above, for straight pipes only. |
| 3 | Axial strength | P4.3.2 | As above |
| 4 | Load deformation | ASTM D2412 or equivalent | Top, Middle, Bottom (of each pressure range) |
| 5 | Temperature limitations | ISO 75 Method A GRP piping system: HDT test on each type of resin acc. to ISO 75 method A Thermoplastic piping systems: ISO 75 Method A ISO 306 Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST) VICAT test according to ISO 2507 Polyesters with an HDT below 80° C should not be used. | Each type of resin |
| 6 | Impact resistance | ISO 9854, ISO 9653, ISO 15493 ASTM D2444, or equivalent | Representative sample of each type of construction |
| 7 | Ageing | Manufacturer's standard ISO 9142 | Each type of construction |
| 8 | Fatigue | Manufacturer's standard or service experience. | Each type of construction |
| 9 | Fluid absorption | ISO 8361 | |
| 10 | Material compatibility ⁽²⁾ | ASTM C581 Manufacturer 's standard | |

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(cont)

Table 2: Typical additional requirements depending on service and/or locations of piping

| | Test | Typical Standard | Notes |
|---|---|---|---|
| 1 | Fire endurance ⁽¹⁾⁽²⁾ | IMO Res. A753(18), Appendix 1, 2 | Representative samples of each type of construction and type of pipe connection |
| 2 | Flame spread ⁽¹⁾⁽²⁾ | UR P 4.4.2 | Representative samples of each type of construction. |
| 3 | Smoke generation ⁽²⁾ | IMO Fire Test Procedures Code | Representative samples of each type of construction. |
| 4 | Toxicity ⁽²⁾ | IMO Fire Test Procedures Code | Representative samples of each type of construction. |
| 5 | Electrical conductivity ⁽¹⁾⁽²⁾ | ASTM F1173-95 or ASTM D257, NS 6126 para. 11.2 or equivalent | Representative samples of each type of construction |

Footnotes:

⁽¹⁾ Test to be witnessed by a Classification Society's Surveyor.⁽²⁾ If applicable.

Note: Tests of Table 2 are optional however, if not carried out, the range of approved applications for the pipes will be limited accordingly (see UR P4.4).

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