



Standard Specification for Road Tar¹

This standard is issued under the fixed designation D 490; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers 14 grades of tar as follows: RT-1, RT-2, RT-3, RT-4, RT-5, RT-6, RT-7, RT-8, RT-9, RT-10, RT-11, RT-12, RT.C.B.-5, and RT.C.B.-6.

2. Referenced Documents

2.1 ASTM Standards:

D 4 Test Method for Bitumen Content²

D 20 Test Method for Distillation of Road Tars³

D 36 Test Method for Softening Point of Bitumen (Ring and Ball Apparatus)²

D 70 Test Method for Specific Gravity and Density of Semi-Solid Bituminous Materials³

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation⁴

D 139 Test Method for Float Test for Bituminous Materials³

D 140 Practice for Sampling Bituminous Materials³

D 1665 Test Method for Engler Specific Viscosity of Tar Products³

3. Physical Requirements

3.1 The tar shall conform to the requirements in Table 1.

4. Sampling

4.1 The material shall be sampled in accordance with Practice D 140.

5. Test Methods

5.1 The properties enumerated in Table 1 shall be determined in accordance with the following methods, with the exception of the test specified in 5.1.3:

5.1.1 *Water*—Test Method D 95.

5.1.2 *Specific Gravity*— Test Method D 70.

5.1.3 *Specific Viscosity*—Test Method D 1665. The results shall be reported as specific viscosity compared with water at 25°C.

5.1.4 *Float Test*—Test Method D 139.

5.1.5 *Distillation*— Test Method D 20.

5.1.6 *Softening Point*— Test Method D 36.

5.1.7 *Total Bitumen*— Test Method D 4.

¹ This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.43 on Specifications and Tests for Tar and Tar Products.

Current edition approved Feb. 15, 1992. Published May 1992. Originally published as D 490 – 38 T. Last previous edition D 490 – 77 (1983) ^{ϵ 1}.

² *Annual Book of ASTM Standards*, Vol 04.04.

³ *Annual Book of ASTM Standards*, Vol 04.03.

⁴ *Annual Book of ASTM Standards*, Vol 05.01.

TABLE 1 Requirements for Tar

| | Grade RT-1 | Grade RT-2 | Grade RT-3 | Grade RT-4 | Grade RT-5 | Grade RT-6 | Grade RT-7 |
|--|-----------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Water by volume %, max | 2.00 | 2.00 | 2.00 | 2.00 | 1.5 | 1.5 | 1.0 |
| Specific gravity at 25/25°C (77/77°F), min | 1.08 | 1.08 | 1.09 | 1.09 | 1.10 | 1.10 | 1.12 |
| Specific viscosity: ^A | | | | | | | |
| Engler, 50 mL: | | | | | | | |
| at 40°C (104°F) | 5 to 8 | 8 to 13 | 13 to 22 | 22 to 35 | ... | ... | ... |
| at 50°C (122°F) | ... | ... | ... | ... | 17 to 26 | 26 to 40 | ... |
| Float test, ^A s: | | | | | | | |
| at 32°C (89.6°F) | ... | ... | ... | ... | ... | ... | 50 to 80 |
| at 50°C (122°F) | ... | ... | ... | ... | ... | ... | ... |
| Distillation test on water-free material | | | | | | | |
| Total distillate, mass %: | | | | | | | |
| to 170°C (338°F) | 7.0 max | 7.0 max | 7.0 max | 5.0 max | 5.0 max | 5.0 max | 3.0 max |
| to 200°C (392°F) | ... | ... | ... | ... | ... | ... | ... |
| to 235°C (455°F) | ... | ... | ... | ... | ... | ... | ... |
| to 270°C (518°F) | 35.0 max | 35.0 max | 30.0 max | 30.0 max | 25.0 max | 25.0 max | 20.0 max |
| to 300°C (572°F) | 45.0 max | 45.0 max | 40.0 max | 40.0 max | 35.0 max | 35.0 max | 30.0 max |
| Softening point (ring-and-ball method) of residue from distillation test | 30 to 60°C (86 to 140°F) | 30 to 60°C (86 to 140°F) | 35 to 65°C (95 to 149°F) | 35 to 65°C (95 to 149°F) | 35 to 70°C (95 to 158°F) | 35 to 70°C (95 to 158°F) | 35 to 70°C (95 to 158°F) |
| Total bitumen (soluble in carbon disulfide) weight %, min | 88 | 88 | 88 | 88 | 83 | 83 | 78 |
| | Grade RT-8 | Grade RT-9 | Grade RT-10 | Grade RT-11 | Grade RT-12 | Grade R.T.C.B.-5 | Grade R.T.C.B.-6 |
| Water by volume %, max | none | none | none | none | none | 1.0 | 1.0 |
| Specific gravity at 25/25°C (77/77°F), min | 1.14 | 1.14 | 1.15 | 1.16 | 1.16 | 1.09 | 1.09 |
| Specific viscosity: ^A | | | | | | | |
| Engler, 50 mL: | | | | | | | |
| at 40°C (104°F) | ... | ... | ... | ... | ... | ... | ... |
| at 50°C (122°F) | ... | ... | ... | ... | ... | 17 to 26 | 26 to 40 |
| Float test, ^A s | | | | | | | |
| at 32°C (89.6°F) | 80 to 120 | 120 to 200 | ... | ... | ... | ... | ... |
| at 50°C (122°F) | ... | ... | 75 to 100 | 100 to 150 | 150 to 220 | ... | ... |
| Distillation test on water-free material | | | | | | | |
| Total distillate by mass percent: | | | | | | | |
| to 170°C (338°F) | 1.0 max | 1.0 max | 1.0 max | 1.0 max | 1.0 max | 2.0 to 8.0 | 2.0 to 8.0 |
| to 200°C (392°F) | ... | ... | ... | ... | ... | 5.0 min | 5.0 min |
| to 235°C (455°F) | ... | ... | ... | ... | ... | 8.0 to 18.0 | 8.0 to 18.0 |
| to 270°C (518°F) | 15.0 max | 15.0 max | 10.0 max | 10.0 max | 10.0 max | ... | ... |
| to 300°C (572°F) | 25.0 max | 25.0 max | 20.0 max | 20.0 max | 20.0 max | 35.0 max | 35.0 max |
| Softening point (ring-and-ball method) of residue from distillation test | 35 to 70°C (95 to 158°F) | 35 to 70°C (95 to 158°F) | 40 to 70°C (104 to 158°F) | 40 to 70°C (104 to 158°F) | 40 to 70°C (104 to 158°F) | 40 to 70°C (104 to 158°F) | 40 to 70°C (104 to 158°F) |
| Total bitumen (soluble in carbon disulfide) by mass %, min | 78 | 78 | 75 | 75 | 75 | 80 | 80 |

^A The consistency limits are subdivided into grades RT-1 to RT-12, inclusive, and grades R.T.C.B.-5, R.T.C.B.-6, so that material may be chosen to meet the local conditions of temperature, road conditions, and climate.

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