



Standard Specification for Road Tar¹

This standard is issued under the fixed designation D490; 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 U.S. 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:*²

[D4 Test Method for Bitumen Content](#)

[D20 Test Method for Distillation of Road Tars](#)

[D36 Test Method for Softening Point of Bitumen \(Ring-and-Ball Apparatus\)](#)

[D70 Test Method for Density of Semi-Solid Bituminous Materials \(Pycnometer Method\)](#)

[D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation](#)

[D139 Test Method for Float Test for Bituminous Materials](#)

[D140 Practice for Sampling Bituminous Materials](#)

[D1665 Test Method for Engler Specific Viscosity of Tar Products](#)

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 [D140](#).

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 [D95](#).

5.1.2 *Specific Gravity*—Test Method [D70](#).

5.1.3 *Specific Viscosity*—Test Method [D1665](#). The results shall be reported as specific viscosity compared with water at 25°C.

5.1.4 *Float Test*—Test Method [D139](#).

5.1.5 *Distillation*—Test Method [D20](#).

5.1.6 *Softening Point*—Test Method [D36](#).

5.1.7 *Total Bitumen*—Test Method [D4](#).

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 Test for Tar and Tar Products.

Current edition approved July 1, 2016. Published August 2016. Originally approved in 1938. Last previous edition approved in 2011 as D490 – 92 (2011). DOI: 10.1520/D0490-92R16.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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 RT.C.B.-5	Grade RT.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 RT.C.B.-5, RT.C.B.-6, so that material may be chosen to meet the local conditions of temperature, road conditions, and climate.

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, Tel: (978) 646-2600; http://www.copyright.com/