

# 中华人民共和国国家标准

GB/T 23512—2015/ISO 13678:2010  
代替 GB/T 23512—2009

GB/T 23512—2015/ISO 13678:2010

## 石油天然气工业 套管、油管、 管线管和钻柱构件用螺纹脂的评价与试验

Petroleum and natural gas industries—Evaluation and testing of thread  
compounds for use with casing, tubing, line pipe and drill stem elements

(ISO 13678:2010, IDT)

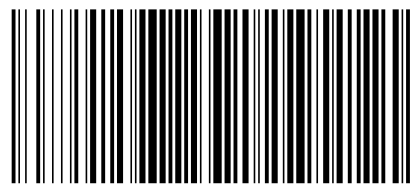
中华人民共和国  
国家标准  
石油天然气工业 套管、油管、  
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GB/T 23512—2015/ISO 13678:2010

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[29] ASTM D6184 Standard Test Method for Oil Separation from Lubricating Grease (Conical Sieve Method)

[30] ASTM E11 Standard Specification for Wire Cloth and Sieves for Testing Purposes

[31] ASTM E478 Standard Test Methods for Chemical Analysis of Copper Alloys

[32] DIN 51802 Testing Lubricating Greases for their Corrosion-Inhibiting Properties by the SKF Emcor Method

[33] NACE 134 Evaluation of the Corrosion Inhibition Property of Storage Compounds, CHOI, H.J. and JONES, S.B

[34] NF X 41-002 Protection contre les agents physiques chimiques et biologiques—Essai au brouillard salin (Protection against physical, chemical and biological agents—Salt spray test)

[35] SPE 11396 A Test Program for the Evaluation of Oilfield Thread Protectors, DALE, B.A., MOYER, M.C. and SAMPSON, T.W., 1983

[36] Federal Test Method Standard 791B-321.2 Oil separation test for grease

## 参 考 文 献

- [1] ISO/TR 10400 Petroleum and natural gas industries—Equations and calculations for the properties of casing, tubing, drill pipe and line pipe used as casing or tubing
- [2] ISO 10405 Petroleum and natural gas industries—Case and use of casing and tubing
- [3] ISO 10407-1 Petroleum and natural gas industries—Rotary drilling equipment—Part 1: Drill stem design and operating limits
- [4] ISO 11007 Petroleum products and lubricants—Determination of rust-prevention characteristics of lubricating greases
- [5] ISO 11960 Petroleum and natural gas industries—Steel pipes for use as casing or tubing for wells
- [6] ISO 13679 Petroleum products and lubricants—Procedures for testing casing and tubing connections
- [7] ANSI/API TR 5C3 Bulletin on formulas and calculations for casing, tubing, drill pipe, and line pipe properties
- [8] API RP 5A3 Recommended practice on thread compounds for casing, tubing and line pipe
- [9] API RP 5C1 Recommended practice for care and use of casing and tubing
- [10] API RP 5C5 Recommended practice on procedures for testing casing and tubing connection
- [11] API SPEC 5CT Specification for casing and tubing
- [12] API RP 7A1 Testing of thread compound for rotary shouldered connections
- [13] API RP 7G Recommended practice for drill stem design and operating limits
- [14] API 1997 API Thread compound research, Full-scale performance tests of environmentally acceptable thread compounds (summary report)
- [15] API PRAC Project 88-51, 89-51, 91-51:1992 Investigation of pipe thread compounds
- [16] ASME B1.1 Unified Inch Screw Threads, UN and UNR Thread Form
- [17] ASTM B 117 Standard Practice for Operating Salt Spray (Fog) Apparatus
- [18] ASTM C561 Standard Test Method for Ash in a Graphite Sample
- [19] ASTM D128 Standard Test Methods for Analysis of Lubricating Grease
- [20] ASTM D283 Standard Test Methods for Chemical Analysis of Cuprous Oxide and Copper Pigments
- [21] ASTM D445 Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
- [22] ASTM D521 Standard Test Methods for Chemical Analysis of Zinc Dust (Metallic Zinc Powder)
- [23] ASTM D566 Standard Test Method for Dropping Point of Lubricating Grease
- [24] ASTM D1301 Standard Test Methods for Chemical Analysis of White Lead Pigments
- [25] ASTM D1743 Standard Test Method for Determining Corrosion Preventive Properties of Lubricating Greases
- [26] ASTM D2196 Standard Test Methods for Theological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer
- [27] ASTM D2509 Standard Test Method for Measurement of Load—Carrying Capacity of Lubricating Grease (Timken Method)
- [28] ASTM D2596 Standard Test Method for Measurement of Extreme—Pressure Properties of

## 前 言

本标准按照 GB/T 1.1—2009 给出的规则起草。

本标准代替 GB/T 23512—2009《石油天然气工业 套管、油管 and 管线管用螺纹脂》，与 GB/T 23512—2009 相比，除编辑性修改外，主要技术变化如下：

- 修改了标准名称；
- 增加了一致性；
- 修改了术语和定义；
- 增加了 API RP 7A1《旋转台肩接头螺纹脂试验》内容。

本标准使用翻译法等同采用 ISO 13678:2010《石油天然气工业——套管、油管、管线管和钻柱构件用螺纹脂》。

与本标准中规范性引用国际文件有一致性对应关系的我国文件如下：

- GB/T 269—1991 润滑脂和石油脂锥入度测定法 (eqv ISO 2137:1985)；
- GB/T 4929—1985 润滑脂滴点测定法 (eqv ISO 2176:1979)；
- GB/T 7326—1987 润滑脂铜片腐蚀试验法 (eqv ASTM D4048:1981)。

请注意本文件的某些内容可能涉及专利。本文件的发布机构不承担识别这些专利的责任。

本标准由全国石油天然气标准化技术委员会 (SAC/TC 355) 归口。

本标准起草单位：中国石油集团石油管工程技术研究院、西安三环科技开发总公司、无锡中石油润滑脂有限公司。

本标准主要起草人：刘养勤、田峰、邵晓东、曲璐璐、徐婷、方伟、杨晓钧、褚铭铭。

本标准所代替标准的历次版本发布情况为：

- GB/T 23512—2009。