

Application of Internal Plastic Coatings for Oilfield Tubular Goods and Accessories

©2023 Association for Materials Protection and Performance (AMPP). All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without the prior written permission of AMPP.

Application of Internal Plastic Coatings for Oilfield Tubular Goods and Accessories

This AMPP standard represents a consensus of those individual members who have reviewed this document, its scope, and provisions. Its acceptance does not in any respect preclude anyone, whether he or she has adopted the standard or not, from manufacturing, marketing purchasing, or using products, processes, or procedures not in conformance with this standard. Nothing contained in this AMPP standard is to be construed as granting any right, by implication or otherwise, to manufacture, sell, or use in connection with any method, apparatus, or product covered by Letters Patent, or as indemnifying or protection anyone against liability for infringement of Letters Patent. This standard represents minimum requirements and should in no way be interpreted as a restriction on the use of better procedures or materials. Neither is this standard intended to apply in all cases relating to the subject. Unpredictable circumstances may negate the usefulness of this standard in specific instances. AMPP assumes no responsibility for the interpretation or use of this standard by other parties and accepts responsibility for only those official AMPP interpretations issued by AMPP in accordance with its governing procedures and policies which preclude the issuance of interpretation by individual volunteers.

Users of this AMPP standard are responsible for reviewing appropriate health, safety, environmental, and regulatory documents and for determining their applicability in relation to this standard prior to its use. This AMPP standard may not necessarily address all potential health and safety problems, or environmental hazards associated with the use of materials, equipment, and/or operations detailed or referred to within this standard. Users of this AMPP standard are also responsible for establishing appropriate health, safety, and environmental protection practices, in consultation with appropriate regulatory authorities, if necessary, to achieve compliance with any existing applicable regulatory requirements prior to the use of this standard.

CAUTIONARY NOTICE: AMPP standards are subject to periodic review and may be revised or withdrawn at any time in accordance with AMPP technical committee procedures. AMPP requires that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of initial publication and subsequently from the date of each reaffirmation or revision. The user is cautioned to obtain the latest edition. Purchasers of AMPP standards may receive current information on all standards and other AMPP/NACE/SSPC publications by contacting AMPP Customer Support, 15835 Park Ten Place, Houston, Texas 77084-5141 (Tel: +1-281-228-6200, email: customersupport@ampp.org).

Document History:

- 2023-06-05: Revised by AMPP Standards Committee (SC) 04, Linings and Internal Coatings
- 2017-01-09: Revised by NACE Specific Technology Group (STG) 33—Oil and Gas Production: Nonmetallics and Wear Coatings (Metallics)
- 2008-03-19: Reaffirmed by NACE STG 33—Oil and Gas Production: Nonmetallics and Wear Coatings (Metallics)
- 2002-September: Reaffirmed by NACE STG 33—Oil and Gas Production: Nonmetallics and Wear Coatings (Metallics)
- 1996-September: Reaffirmed by NACE Unit Committee T-1G on Protective Coatings, Elastomers, and Other Nonmetallic Materials for Oilfield Use
- 1991-February: Approved by NACE Unit Committee T-1G on Protective Coatings, Elastomers, and Other Nonmetallic Materials for Oilfield Use

AMPP values your input. To provide feedback on this standard, please contact: standards@ampp.org

Application of Internal Plastic Coatings for Oilfield Tubular Goods and Accessories

Foreword, Scope, Rationale	4
Referenced Standards and Other Consensus Documents	4
Section 1 General	5
Section 2 Definitions	5
Section 3 Preliminary Requirements	5
Section 4 Initial Inspection	6
Section 5 Surface Preparation	6
5.1 Cleaning	6
5.2 Abrasive Blasting	7
Section 6 Coating Application	8
Section 7 Coating Inspection	9
Section 8 Coupling/Connection Make-Up	11
Section 9 Quality Assurance and Quality Control	11
Section 10 Handling, Storage, and Shipping	11
Section 11 Marking	12
Appendix A Bullet-Nosed Pin Ends on API 8-Round Connections (Mandatory)	13
Appendix B Required Inspection Equipment (Mandatory)	14
Appendix C Tubing Pin End Finish Coating Thickness Requirements (Mandatory)	15
Appendix D Typical Holiday Inspection Equipment – Pin Ends, Couplings, and Other Accessories (Nonmandatory)	16
Figures	
Figure A1 Radius Requirement for Proper Bullet Nosing	13
Figure C1 Tubing Pin End Finish	15
Figure D1 Typical Holiday Inspection Equipment	16
Tables	
Table A1 Bullet-Nosed Pin End Radius Guidelines on API 8-Round Connections	13

Foreword

This standard practice was prepared to serve as an industry guideline for the proper application of internal plastic coatings on oilfield tubular goods and accessories. This standard is intended for users, applicators, and manufacturers.

Premature failures of coatings on oilfield tubular goods and accessories often occur due to improper surface preparation or due to coating application or both. This standard presents the correct procedures for surface preparation, coating application and inspection to be followed to ensure extended life to oilfield tubular goods and accessories.

Scope

This standard addresses initial inspection of the tubular goods and accessories prior to coating, surface preparation, coating application, coating inspection, coupling/connection make-up, quality control, handling, storage, shipping, and marking.

Rationale

This standard was created to provide end users with the guidance to mitigate damage during the transportation, handling, installation, and usage of internally coated tubulars. This revision is a result of required periodic review, and provides greater clarification of specific points.

Referenced Standards and Other Consensus Documents

The latest edition, revision, or amendment of the referenced documents in effect shall govern unless otherwise dated.

AMPP/NACE/SSPC, www.ampp.org:

NACE SP0287	Field Measurement of Surface Profile of Abrasive Blast-Cleaned Steel Surfaces Using a Replica Tape
NACE SP0291	Care, Handling, and Installation of Internally Plastic-Coated Oilfield Tubular Goods and Accessories
NACE TM0185	Evaluation of Internal Plastic Coatings for Corrosion Control of Tubular Goods by Autoclave Testing
NACE TM0186	Holiday Detection of Internal Tubular Coatings of 250 to 760 μm (10 to 30 mil) Dry-Film Thickness
NACE TM0384	Holiday Detection of Internal Tubular Coatings of Less Than 250 μm (10 mil) Dry-Film Thickness
SSPC-SP 1	Solvent Cleaning
SSPC-SP 5/NACE No. 1	White Metal Blast Cleaning

ASTM International, www.astm.org:

ASTM D4285	Standard Test Method for Indicating Oil or Water in Compressed Air
------------	--

American Petroleum Institute (API), www.api.org:

API 5CT	Specification for Casing and Tubing
---------	-------------------------------------

National Institute of Science and Technology (NIST), www.nist.gov:

NIST SRM 1362a	Coating Thickness Standard (Cu + Cr Coating on Steel)
NIST SRM 1363a	Coating Thickness Standard (Cu + Cr Coating on Steel)
NIST SRM 1364b	Coating Thickness Standard (Nonmagnetic Coating on Steel)