

# Application of Internal Plastic Coatings for Oilfield Tubular Goods and Accessories

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## **ABSTRACT**

*This standard presents guidelines for the proper application of plastic coatings to the internal surfaces of oilfield tubular goods and accessories. 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. This standard is maintained by Task Group 487.*

## **KEYWORDS**

*oil and gas, internal plastic coatings.*

## Foreword

***In NACE standards, the terms shall, must, should, and may are used in accordance with the definitions of these terms in the NACE Publications Style Manual. The terms shall and must are used to state a requirement, and are considered mandatory. The term should is used to state something good and is recommended, but is not considered mandatory. The term may is used to state something considered optional.***

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. It is intended for users, applicators, and manufacturers.

Premature failures of coatings on oilfield tubular goods and accessories often occur when the surface has not been properly prepared or the coating has not been properly applied. This standard presents proper procedures to be followed to ensure appropriate application of the coating to give the anticipated extended life to oilfield tubular goods and accessories.

This standard was originally prepared in 1991 by NACE Task Group T-1G-4, a component of Unit Committee T-1G on Protective Coatings, Elastomers, and Other Nonmetallic Materials for Oilfield Use. It was reviewed by T-1G and reaffirmed in 1996. It was reaffirmed in 2002 and 2008 by Specific Technology Group (STG) 33—Oil and Gas Production: Nonmetallics and Wear Coatings (Metallics). It was revised in 2017 by Task Group (TG) 487, Review and Revise as Necessary SP0191-2008 (formerly RP0191). This standard is issued by NACE International under the auspices of STG 33.

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## Section 1: General

- 1.1** This standard presents requirements for the proper application of internal plastic coatings (IPC) to the internal surfaces of oilfield tubular goods and accessories.
- 1.2** The functions of the internal plastic coating system may be, but are not limited to the following:
- 1.2.1** Serve as an impermeable barrier that prevents corrosive service environment (transported gas, fluids, and/or introduced chemicals) from accessing the bare steel surface of the pipe bore.
  - 1.2.2** Enhancing flow efficiency of transported products by reduction of friction coefficient.
  - 1.2.3** Improving hydraulic properties and flow-assurance of the pipe by reducing of formation of blockages by dropped out solids, attachment of harmful bacteria to the pipe bore surface, bonding of hydrates to the pipe wall, etc.
  - 1.2.4** Reduction of erosion and wear of steel internal surfaces by transported solids.
- 1.3** Properly applied IPC significantly reduces the risk of internal corrosion and premature failure. Additional benefits may be realized by the improved flow efficiency and flow assurance.
- 1.4** 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.

## Section 2: Definitions

**Applicator:** An individual or company that performs the IPC application.

**IPC material:** Internally plastic-coated tubular goods (tubing, casing, line pipe, or drill pipe) and accessories (couplings, fittings, valves, mandrels, packers, etc.)

**Manufacturer:** An individual or company that manufactures the IPC.

**Plastic coating:** A polymeric film applied to oilfield tubular goods (tubing, casing, line pipe, or drill pipe) and accessories (couplings, fittings, valves, mandrels, packers, etc.) to form a protective barrier between the metal surface and the environment to minimize corrosion, contamination, deposit formation, improve flow efficiency and/or flow assurance.

**Thick-film coating:** An IPC that has a final dry film thickness of 250 to 760  $\mu\text{m}$  (10 to 30 mil).

**Thin-film coating:** An IPC that has a final dry film thickness of less than 250  $\mu\text{m}$  (10 mil).

**User:** An individual or company, or its authorized representative(s), who makes use of the internally plastic-coated (IPC) tubular goods and accessories. The user is responsible for selection of the IPC for the intended service.