

Surface preparation and protective coating

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Foreword

The NORSOK standards are developed by the Norwegian petroleum industry to ensure adequate safety, value adding and cost effectiveness for petroleum industry developments and operations. Furthermore, NORSOK standards are, as far as possible, intended to replace oil company specifications and serve as references in the authorities' regulations.

The NORSOK standards are normally based on recognised international standards, adding the provisions deemed necessary to fill the broad needs of the Norwegian petroleum industry. Where relevant, NORSOK standards will be used to provide the Norwegian industry input to the international standardisation process. Subject to development and publication of international standards, the relevant NORSOK standard will be withdrawn.

The NORSOK standards are developed according to the consensus principle generally applicable for most standards work and according to established procedures defined in NORSOK A-001.

The NORSOK standards are prepared and published with support by The Norwegian Oil Industry Association (OLF), The Federation of Norwegian Industry, Norwegian Ship owners' Association and The Petroleum Safety Authority Norway.

NORSOK standards are administered and published by Standards Norway.

Introduction

The main changes included in this edition are that

- the content of a paint report and an example of such is included,
- additional requirements for surface protection of valves actuators, gearboxes, pumps and motors are implemented,
- requirements for reinforcement and anchoring of sprayed fire protecting with fibre mesh are given,
- requirements for subsea coatings at higher temperature than 50 °C is given,
- IMO MSC215(82) classification testing has been accepted as an alternative qualification method for ballast water tank coatings (coating system no. 3B),
- more detailed specification of what to include in the coating procedure specification is given,
- a time limit for the validity of the coating procedure test is specified,
- coating system numbering is made more detailed for system no. 6 and system no. 7,
- polyester based powder coating is included as an alternative on top of hot dipped galvanized steel and aluminium based structures,
- coating system for subsea is split into three categories.

1 Scope

This NORSOK standard gives the requirements for the selection of coating materials, surface preparation, application procedures and inspection for protective coatings to be applied during the construction and installation of offshore installations and associated facilities.

This NORSOK standard cover paints, metallic coatings and application of spray-on passive fire protective coatings.

The aim of this NORSOK standard is to obtain a coating system, which ensures

- optimal protection of the installation with a minimum need for maintenance,
- that the coating system is maintenance friendly,
- that the coating system is application friendly,
- that health, safety and environmental impacts are evaluated and documented.

This NORSOK standard is not applicable to pipelines and pipeline risers.

2 Normative and informative references

The following standards include provisions and guidelines which, through reference in this text, constitute provisions and guidelines of this NORSOK standard. Latest issue of the references shall be used unless otherwise agreed. Other recognized standards may be used provided it can be shown that they meet the requirements of the referenced standards.

2.1 Normative references

ASTM D4752,	Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub
IMO MSC215(82),	Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-sided skin spaces of bulk carriers
ISO 1461,	Metallic coatings – Hot-dip galvanised coating on fabricated ferrous products – Requirements
ISO 2814,	Paints and varnishes – Comparison of contrast ratio (hiding power) of paint of the same type and colour
ISO 4624,	Paints and varnishes – Pull-off test for adhesion
ISO 4628-6,	Paints and varnishes – Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common types of defect – Part 6: Rating of degree of chalking by tape method
ISO 8501-1,	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings. Informative supplement to part 1: Representative photographic examples of the change of appearance imparted to steel when blast-cleaned with different abrasives (ISO 8501-1:1988/Suppl:1994)
ISO 8501-3,	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 3: Preparation grades of welds, edges and other areas with surface imperfections
ISO 8502-3,	Preparation of steel substrates before application of paints and related products – Test for the assessment of surface cleanliness – Part 3: Assessment of dust on steel surfaces prepared for painting (pressure sensitive tape method)
ISO 8502-6,	Preparation of steel substrates before application of paints and related products – Test for the assessment of surface cleanliness – Part 6: Extraction of soluble contaminants for analysis – The Bresle method
ISO 8502-9,	Preparation of steel substrates before application of paints and related products – Test for the assessment of surface cleanliness – Part 9: Field method for the conductometric determination of water-soluble salts
ISO 8503,	Preparation of steel substrates before application of paints and related products – Surface roughness characteristics of blast cleaned substrates
ISO 8504-2,	Preparation of steel substrates before application of paints and related products – Surface preparation methods – Part 2: Abrasive blast cleaning
ISO 12944-4,	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 4: Types of surface and surface preparation
ISO 12944-5,	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 5: Protective paint systems
ISO 14919,	Thermal spraying — Wires, rods and cords for flame and arc spraying – Classification – Technical supply conditions
ISO 19840,	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Measurement of, and acceptance criteria for, the thickness of dry film on rough surfaces
ISO 20340,	Paints and varnishes – Performance requirements for protective paint systems for offshore and related structures
ISO 29601,	Paints and varnishes – Corrosion protection by protective paint systems - Assessment of porosity in a dry film
NORSOK M-001,	Materials selection
NORSOK R-004,	Piping and equipment insulation
NORSOK S-002,	Working environment
NS 476,	Paints and coatings – Approval and certification of surface treatment inspectors
SFS 8145,	Anticorrosive painting, surface preparation methods of blast cleaned and shop primer coated steel substrates and preparation grades for respective treatments