TECHNICAL SPECIFICATION

INTERNAL COATING OF LINE PIPE FOR NON-CORROSIVE GAS TRANSMISSION SERVICE
(AMENDMENTS/SUPPLEMENTS TO API RP 5L2)

DEP 31.40.30.35-Gen.

July 1998

DESIGN AND ENGINEERING PRACTICE

PREFACE

DEP (Design and Engineering Practice) publications reflect the views, at the time of publication, of:

Shell International Oil Products B.V. (SIOP)
and
Shell International Exploration and Production B.V. (SIEP)
and
Shell International Chemicals B.V. (SIC)

The Hague, The Netherlands,

and other Service Companies.

They are based on the experience acquired during their involvement with the design, construction, operation and maintenance of processing units and facilities, and they are supplemented with the experience of Group Operating companies. Where appropriate they are based on, or reference is made to, national and international standards and codes of practice.

The objective is to set the recommended standard for good design and engineering practice applied by Group companies operating an oil refinery, gas handling installation, chemical plant, oil and gas production facility, or any other such facility, and thereby to achieve maximum technical and economic benefit from standardization.

The information set forth in these publications is provided to users for their consideration and decision to implement. This is of particular importance where DEPs may not cover every requirement or diversity of condition at each locality. The system of DEPs is expected to be sufficiently flexible to allow individual operating companies to adapt the information set forth in DEPs to their own environment and requirements.

When Contractors or Manufacturers/Suppliers use DEPs they shall be solely responsible for the quality of work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, the Principal will expect them to follow those design and engineering practices which will achieve the same level of integrity as reflected in the DEPs. If in doubt, the Contractor or Manufacturer/Supplier shall, without detracting from his own responsibility, consult the Principal or its technical advisor.

The right to use DEPs is granted by SIOP, SIEP or SIC, in most cases under Service Agreements primarily with companies of the Royal Dutch/Shell Group and other companies receiving technical advice and services from SIOP, SIEP or SIC. Consequently, three categories of users of DEPs can be distinguished:

1) Operating companies having a Service Agreement with SIOP, SIEP, SIC or other Service Company. The use of DEPs by these Operating companies is subject in all respects to the terms and conditions of the relevant Service Agreement.

2) Other parties who are authorized to use DEPs subject to appropriate contractual arrangements.

3) Contractors/subcontractors and Manufacturers/Suppliers under a contract with users referred to under 1) or 2) which requires that tenders for projects, materials supplied or - generally - work performed on behalf of the said users comply with the relevant standards.

Subject to any particular terms and conditions as may be set forth in specific agreements with users, SIOP, SIEP and SIC disclaim any liability of whatsoever nature for any damage (including injury or death) suffered by any company or person whomsoever as a result of or in connection with the use, application or implementation of any DEP, combination of DEPs or any part thereof. The benefit of this disclaimer shall inure in all respects to SIOP, SIEP, SIC and/or any company affiliated to these companies that may issue DEPs or require the use of DEPs.

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All administrative queries should be directed to the DEP Administrator in SIOP.

NOTE: In addition to DEP publications there are Standard Specifications and Draft DEPs for Development (DDDs). DDDs generally introduce new procedures or techniques that will probably need updating as further experience develops during their use. The above requirements for distribution and use of DEPs are also applicable to Standard Specifications and DDDs. Standard Specifications and DDDs will gradually be replaced by DEPs.

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PART I INTRODUCTION

1.1 SCOPE

This new DEP specifies requirements and gives recommendations for the factory application of internal flow coat to bare or externally coated line pipe for use in single phase gas transmission pipelines with the objective of reducing surface roughness and pressure losses. The requirements for the application of coating to protect against internal corrosion by corrosive transported fluids are outside of the scope of this DEP.

Part II of this DEP provides amendments and supplements to API RP 5L2, third edition, July 1993 and shall be read in conjunction with that document. The clause numbering in Part II of this DEP follows that of API RP 5L2. Where clauses of API RP 5L2 are not amended or supplemented by this DEP, they shall apply as written.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by SIEP and SIOP, the distribution of this DEP is confined to companies forming part of the Royal Dutch/Shell Group or managed by a Group company, and to Contractors and Manufacturers/Suppliers nominated by them (i.e. the distribution code is "F", as defined in DEP 00.00.05.05-Gen.).

This DEP is intended for use in gas plants and exploration and production facilities.

If national and/or local regulations exist in which some of the requirements may be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable as regards safety, environmental, economic and legal aspects. In all cases the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned with the object of obtaining agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

The **Contractor** is the party which carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project, or operation or maintenance of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party which manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Principal** is the party which initiates the project and ultimately pays for its design and construction. The Principal will generally specify the technical requirements. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Specific definitions

Coating Contractor	The party which is ultimately responsible for the coating operation which may include supply of coating materials, application of the coating and transport of uncoated and coated line pipe as specified in the relevant contract. The coating Contractor may be the Applicator, the Coating Manufacturer, the Line Pipe Manufacturer or the Pipeline Construction Contractor.

Coating Manufacturer	The party which manufactures the coating materials supplied to the Applicator. Where the term Supplier has been used in API RP 5L2 it shall be taken to mean **Coating Manufacturer**.
Line Pipe Manufacturer	The party which manufactures or supplies the line pipe to be coated.
Pipeline Construction Contractor	The party responsible for the construction of the pipeline in the field.
Shift	A set of pipes coated in one production run of which the beginning and end coincide with a change in personnel. In the context of the quality control procedures of this DEP, the maximum duration of a **shift** is 10 hours.
Spot measurement	The average of three or more thickness gauge measurements at different points within a 40 mm diameter circle.
Blushing	The whitening of and loss of gloss on a coating caused by moisture entrainment.

1.4 ABBREVIATIONS

DFT	Dry film thickness
WFT	Wet film thickness

1.5 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section is shown in brackets. Other documents referenced in this DEP are listed in (Part III).

PART II AMENDMENTS/SUPPLEMENTS TO API RP 5L2

SECTION 1 SCOPE

1.1 GENERAL

1.1.1 Coating Manufacturer information

Add the following item:

e. Certification that the formulation of the supplied materials has not changed from that used for laboratory qualification testing.

Add new section:

1.1.2 Information to be supplied by the Principal

The following information should be supplied by the Principal at the enquiry stage of an order:

- linepipe specification;
- pipeline minimum and maximum design and operating temperatures;
- fluids to be transported, including those used in commissioning such as methanol, glycol, or gels;
- length of coating cut back;
- whether temporary protection of bare pipe ends is required;
- internal pipe marking requirements;
- whether specific quality procedures will be reviewed for agreement with the Coating Contractor;
- whether an Inspector will be deployed.

1.2 DEFINITIONS

1.2.1 Applicator

Delete the existing section and replace with the following:

The party which applies the flow coating system in the coating plant.

1.2.2 Purchaser

Delete the existing section and replace with the following:

The Principal as defined in (Part I - 1.3.1).

1.2.3 Coating Manufacturer

Delete the existing section and replace with the following:

The Coating Manufacturer as defined in (Part I - 1.3.2).

1.2.4 Inspector

Add the following:

The Coating Contractor may also deploy an Inspector.

Add the following new clauses:

1.3 QUALITY ASSURANCE SYSTEM

The Applicator should maintain and operate a quality assurance system in accordance with

ISO 9001 or ISO 9002, or with an alternative standard if agreed by the Principal.

1.4 RETENTION OF RECORDS

Contract records, and any others requiring retention by the Applicator's quality assurance system, shall be retained by the Applicator and made available to the Principal upon request for a period of five years after completion of the order.

1.5 MEASURING DEVICES

The Applicator shall control measuring devices in accordance with ISO 10012-1.

SECTION 3 LABORATORY COATING TESTING

3.1 PURPOSE

Add the following:

The qualification testing should be performed at an independent laboratory. If testing is undertaken at the Coating Manufacturer's premises, the tests shall be witnessed by a third party. The Coating Contractor or Applicator shall obtain the results in the form of a full qualification report showing test methods and results. Where applicable, the third party agency shall have endorsed the test results.

Qualification data obtained for previous contracts may be submitted by the Coating Contractor for consideration by the Principal provided that they meet the requirements of this DEP.

3.2 STEEL PANELS FOR PERFORMANCE TESTING

Delete items (1) to (4) and replace with the following:

The steel panels shall be grit-blasted to achieve a preparation grade meeting ISO 8501-1 SA 2.5. The surface profile shall be measured in accordance with ISO 8503-2 or ISO 8503-4. Both the preparation grade and the surface profile of the test panels shall be included in the qualification test report.

3.3 LABORATORY APPLICATION OF COATING MATERIALS

3.3.3 Dry film thickness

Delete the existing section and replace with the following:

The DFT shall be measured in accordance with ISO 2808 and shall be in the range specified in the Coating Manufacturer's data sheets for the material. The DFT shall be recorded in the qualification test report.

3.6 PERFORMANCE TESTING - GLASS PANELS

3.6.2 Application of coating material

Delete the second sentence and replace with the following:

The WFT shall be as specified by the Coating Manufacturer's data sheet for the material, either directly or from calculation to achieve the specified DFT. WFT measurement shall be made in accordance with ISO 2808.

SECTION 4 APPLICATION PRACTICES

4.2 GENERAL

4.2.3 Material

4.2.3.1 Selection

Delete the existing section and replace with the following:

The Applicator shall indicate the selected coating in the tender document. The selection shall be supported by inclusion of the qualification test report required by (3.1).

4.2.3.2 Batch samples

Add the following:

The Applicator shall batch-test the materials for:

- specific gravity;
- volume solids;
- pigment dispersion;
- viscosity (mixed).

The values shall be within the ranges specified by the Coating Manufacturer.

If either the Applicator or the Inspector find the sample to be outside of the material specification, the Applicator shall remove all applied non-conforming coating from the pipe. The pipe shall then be recoated with a verified batch of material.

4.3 HANDLING OF PIPE

Delete the existing clause and replace with the following:

Bevel protectors and/or end caps as installed by the pipe Manufacturer shall be re-installed after coating and before handling of the pipes.

Pipes shall only be lifted using slings, hooks or vacuum lifters, fitted with suitable spreader bars. Chains shall not be used to lift pipes. Wire ropes shall not be used to lift externally coated pipes. Hooks shall be padded with soft material to prevent damage to the bevelled ends.

Lifting trucks or front end loaders shall have soft padded forks or grips to prevent damage to pipes or pipe coating.

Externally coated pipes shall not be rolled or dragged over the ground.

Pipes shall not be lifted in bundles without prior approval by the Principal. When more than one pipe is lifted, separate slings or hooks shall be used for each pipe and coated pipes shall be provided with soft padding between the pipes.

Pipes shall be stored in designated areas. Pipes shall not be stored with other consignments or pipes for other contracts.

Pipes shall be stacked only to such height that damage or deformation due to the weight of other pipes cannot occur. Coated pipes shall be stacked only to such height that no damage to the external or internal coating occurs.

Pipe supports shall be spaced so that no bending of pipes occurs. Pipe supports shall be made of soft padded wooden bolsters or sand rows, free of stones, covered with plastic sheets. The pipe surface shall be at least 150 mm clear of the soil.

Piles of pipe shall be secured by wooden wedges or ground pins, provided with adequate padding to prevent coating damage, and of sufficient size to prevent collapse of the piles.

Externally coated pipes shall be stacked using soft separators such as rubber pads or tyre

tread.

When stored outdoors, pipes shall be placed at a small angle to allow drainage of any rain water from the inside of the pipes. Pipe or external coating that is damaged by handling operations shall be repaired in accordance with the original specification.

Coated pipes shall be prepared for transport or shipment in accordance with API RP 5L1 or API RP 5LW, whichever is applicable.

During transportation, pipes shall be stacked and secured such as to prevent movement, abrasion and/or peening.

4.4 HANDLING OF COATING MATERIALS

4.4.1 Storage and shipping

Delete the existing section and replace with the following:

All material shall be supplied in the Coating Manufacturer's original containers, durably and legibly marked with the description of the contents. This shall include the specification number, the colour reference number, the method of application for which it is intended, the batch number, date of manufacture, the shelf-life expiry date and the Coating Manufacturer's name or recognised trade mark. The storage and preparation of coating materials shall be in accordance with the Coating Manufacturer's instructions.

Different brands or types of coating materials shall be stored separately.

4.5 CLEANING OF PIPE

4.5.1 General

Delete the existing section and replace with the following:

Surface preparation shall be by dry abrasive blast cleaning using an appropriate abrasive. Prior to abrasive blast cleaning, the pipe bore of all pipes shall be visually inspected for contamination by oil, grease, or dirt. Oil, grease, or dirt shall be removed by a suitable cleaning agent, or water jetting.

4.5.4 Drying

Delete the first sentence and replace with the following:

If heating is employed for pipe drying, the maximum pipe temperature shall be 50 °C. The temperature shall be monitored using digital contact thermometers.

4.5.5 Dry cleaning

4.5.5.1 Method

Delete the first sentence.

4.5.5.2 Cleaning machine brushes

Delete the entire section.

4.5.5.3 Cleaning and coating

Delete the first paragraph and replace with the following:

The blast cleaned substrate shall be coated before deterioration occurs.

Add the following:

Abrasive blast cleaning shall not be performed when the relative humidity exceeds 85%, or when the substrate temperature is less than 3°C above the determined atmospheric dew point. In locations with consistent high humidity, the Principal may agree atmospheric criteria based on ISO 8502-4.

Add the following new section:

4.5.7 Abrasives

Suitable abrasives shall be selected from those defined in ISO 8504-2. Each batch of abrasive shall be traceable and shall be certified as being in accordance with the appropriate part of ISO 11124-1 or ISO 11126. Batch certificates shall be available for review by the Inspector. Abrasives without batch certificates shall not be used.

Abrasives may be recycled only when indicated as being suitable for recycling by the abrasive Manufacturer.

Fresh abrasives shall be stored in the original packaging in suitable storage buildings which will prevent them from becoming damp or contaminated. Damp or contaminated fresh and recycled abrasives shall not be used and shall be removed from the site.

4.6.3 Thickness of coating

4.6.3.1 Dry film thickness

Delete the existing section and replace with the following:

The DFT shall be in the range specified and qualified by the Coating Manufacturer.

4.6.5 Acceleration of initial cure

Delete the existing section and replace with the following:

Unless a specific accelerated curing schedule is defined in the Coating Manufacturer's data sheet and qualified during laboratory testing, heating shall not be used to accelerate curing of the applied coating.

4.6.6 Coating film

4.6.6.3 Relative humidity

Delete the existing section and replace with the following:

Coating application shall not be performed when the relative humidity exceeds 85%, or when the substrate temperature is less than 5 °C, or less than 3 °C above the determined atmospheric dew point. In locations with consistent high humidity, the Principal may agree atmospheric criteria based on ISO 8502-4; in which case, continued coating operations will be subject to the agreement of the Inspector.

SECTION 5 PRODUCTION INSPECTION AND ACCEPTANCE

5.2 GENERAL

5.2.2 Applied coating film

Delete the second sentence and replace with the following:

There shall be no blushing.

5.2.3 Special requirement

Delete this section.

Add the following:

5.3 PRODUCTION TESTS

5.3.1 Test for pH on bare surface of pickled or wet cleaned pipe

Delete the existing section and replace with the following:

5.3.1 Inspection and testing of abrasive blast cleaning operations

5.3.1.1 Compressed air

Compressed air for drying and blast cleaning shall be free from water and aerosol oil when tested in accordance with ASTM D 4285. The testing frequency shall be once per day.

5.3.1.2 Steel temperature and relative humidity

Steel temperature and relative humidity shall be determined in accordance with ISO 8502-4. The frequency of steel temperature and relative humidity measurement shall be every two hours and shall include the start of each shift. Results shall be recorded on daily record sheets.

5.3.1.3 Preparation grade

The preparation grade shall meet or exceed the value quoted in the Coating Manufacturer's data sheets and shall be determined in accordance with ISO 8501-1. All prepared pipes shall be inspected.

5.3.1.4 Surface profile

Surface profile shall be determined in accordance with ISO 8503-2 or ISO 8503-4. The profile shall be as specified in the Coating Manufacturer's data sheets. The test frequency shall be once every 10 pipes for the first day's production. Thereafter, subject to all results being satisfactory, the test frequency may be reduced to a value agreed between the Coating Contractor and the Principal based on the expected daily throughput. Records shall be maintained on a daily record sheet which shall show the pipe numbers tested. If a pipe fails to meet the specified acceptance criterion it shall be re-cleaned to achieve the correct profile. All preceding and succeeding pipes shall be checked until three consecutive tests show an acceptable profile. Pipes from these further tests which fail to meet the acceptance criterion shall be reblasted.

5.3.1.5 Surface cleanliness

Salt determination shall be performed in accordance with ISO 8502-2 or, by agreement of the Principal, using electronic devices such as the Elcometer 130 Salt Contamination Meter, in the region coinciding with the coating cut back. The acceptance criterion shall be a maximum of 25 mg per square metre. The test frequency shall be three pipes per shift, evenly spaced. If salt contamination is found to exceed the acceptance criterion, all pipe cleaned between the last and next acceptable pipes shall be subjected to water washing for decontamination followed by reblasting. Records shall be maintained on a daily record

sheet.

The assessment of dust shall be made in accordance with ISO 8502-3. The acceptance criterion shall be a maximum dust quantity rating of 2. The test frequency shall be three pipes per shift evenly spaced. If dust contamination is found to exceed the acceptance criterion, all pipe cleaned between the last and next acceptable pipes shall be subjected to retreatment for dust removal. If surface deterioration occurs, the pipe shall be reblasted. Records shall be maintained on a daily record sheet.

5.3.1.6 Visual inspection for pipe defects

All blast-cleaned pipe shall be examined for imperfections that do not meet the acceptance criteria of the applicable pipe specification. Where accessible, such defects shall be removed by grinding in accordance with the applicable pipe specification. If defects cannot be removed by grinding the pipe shall be set aside for acceptance or rejection by the Principal. Records of pipe repairs shall be made on a daily record sheet.

5.3.2 Panel and slide preparation

Delete the existing section and replace with the following:

Metal test panels shall be used and shall receive identical surface preparation to that of the pipe using production equipment.

5.3.3 Coating and curing of panel or slide

Delete the existing section and replace with the following:

The panel coating shall be dried and cured in an identical manner to the coating applied to the pipe.

5.3.4 Evaluation of test panels and slides

5.3.4.1 Pinhole test

Delete this section.

5.3.4.2 Film thickness test

Add the following:

Film thickness may be measured using the same gauges as those used to take production inspection measurements (5.3.5) on the coated pipe provided that the panel size does not interfere with the measurements.

5.3.4.3 Bend test

Delete this section.

Add the following:

5.3.4.8 Frequency of test panel evaluation

Three test panels per shift, from the start, middle, and end, shall be prepared and evaluated.

5.3.4.9 Test failures

In the event of test panels failing to meet the specified acceptance criteria, the coating shall be removed from the pipe used to support the test panels and the pipe recoated. The Coating Contractor and the Principal shall then agree the further testing necessary to satisfy the Principal that the coating applied after the preceding acceptable test meets the requirements of this DEP.

5.3.5 Production tests on pipe

Add the following:

Each internally coated pipe surface shall be visually inspected. The coating shall be continuous, uniform and free from runs, sags, pinholes, and other imperfections indicative of incorrect coating application.

Coating thickness tests for acceptance shall be made on the internal pipe surface. The test frequency shall be ten pipes per shift, evenly spaced. A test frequency reduction may subsequently be agreed based on satisfactory production inspection results and objective evidence of adequate process control. Production inspection gauges shall be of the magnetic electronic type.

On the selected pipes, four spot measurements shall be taken at 90 degree intervals around the inside diameter. Each spot measurement shall be within the thickness range specified by the Coating Manufacturer.

5.3.6 Repairs

Applied coating which fails to meet the requirements of this DEP shall be removed from the pipe. The pipe shall then be re-prepared and the coating re-applied and inspected in accordance with this DEP. Application of a second coat for thickness build shall only be performed if a two-coat system has been qualified in accordance with (3.).

Add the following:

SECTION 6 DOCUMENTATION

6.1 LANGUAGE

All documentation submissions required by this DEP shall be in the English language.

6.2 PRE-MANUFACTURING DOCUMENTATION

The Coating Contractor's contract-specific quality plan shall be submitted to the Principal for agreement within an agreed time period.

NOTE: Review of a draft quality plan at the enquiry stage of the contract may assist the process.

6.2.1 Content of the quality plan

The format and issue of the quality plan shall be consistent with the document control requirements of the Coating Contractor's quality system.

The content of the quality plan should be based on ISO 10005 and shall include the following:

1. Identification of the product and contract to which the plan is to be applied.
2. Reference to API RP 5L2 and this DEP.
3. Location of coating application.
4. Identification of the individuals responsible for controlling the activities defined in the plan.
5. Identification of the individuals with the authority to interface directly with the Principal.
6. Identification of all subcontractors.
7. The quality plans of all subcontractors.
8. All sequenced activities for the contract and references to the quality system procedures and work instructions which will be applied to these activities.
9. Copies of all the quality system procedures and work instructions covering production, test and inspection, special processes, control of non-conforming product, handling, storage, packing, and shipping as requested for agreement by the Principal.
10. Test and inspection frequency and acceptance criteria including the upper and lower process control limits where statistical process control is employed.
11. The location of each inspection and test point in the process sequence.
12. Points where the Principal has established witnessing or verification requirements.
13. Coating Manufacturer's data sheets and qualification test report.

6.3 CERTIFICATION

The Coating Contractor shall provide the Principal with a certificate of compliance with the order prior to shipment of the pipe. If an Inspector has been deployed by the Principal, issue of the certificate of compliance with the order shall be after review and agreement of the inspection records by the Inspector.

The certificate of compliance with the order shall be drawn up on the basis of specific inspection and testing on the product supplied.

PART III REFERENCES

In this DEP, reference is made to the following publications:

NOTE: Unless specifically designated by date, the latest edition of each publication shall be used, together with any amendments/supplements/revisions thereto.

SHELL STANDARDS

Index to DEP publications and standard specifications	DEP 00.00.05.05-Gen

AMERICAN STANDARDS

Recommended practice for railroad transportation of line pipe	API RP 5L1
Recommended practice for internal coating of line pipe for non-corrosive gas transmission service, Third edition (approved July 12, 1993)	API RP 5L2
Recommended practice for transportation of line pipe on barges and marine vessels	API RP 5LW

Issued by:
American Petroleum Institute
1220 L Street NW
Washington, DC 20005
USA

Standard test method for indicating oil or water in compressed air	ASTM D 4285

Issued by:
American Society for Testing & Materials
100 Bar Harbor Drive
West Conshohocken
PA 19428-2959
USA

INTERNATIONAL STANDARDS

Paints and varnishes - determination of film thickness	ISO 2808
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	ISO 8501-1
Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 2: Laboratory determination of chloride on cleaned surfaces	ISO 8502-2
- Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)	ISO 8502-3
- Part 4: Guidance on the estimation of the probability of condensation prior to paint application	ISO 8502-4

Preparation of steel substrates before application of paint and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part 2: Method for grading of surface profile of abrasive blast-cleaned steel-comparator procedure	ISO 8503-2
Part 4: Method for the calibration of ISO surface profile comparators and for the determination of surface profile - Stylus instrument procedure	ISO 8503-4
Preparation of steel substrates before application of paint and related products - Surface preparation methods - Part 2: Abrasive blast-cleaning	ISO 8504-2
Quality systems - Model for quality assurance in design, development, production, installation and servicing	ISO 9001
Quality systems - Model for quality assurance in production, installation and servicing	ISO 9002
Quality management - Guidelines for quality plans	ISO 10005
Quality assurance requirements for measuring equipment - Part 1: Metrological confirmation system for measuring equipment	ISO 10012-1
Preparation of Steel Substrates Before Application of Paints and related Products - Specifications for Metallic Blast-Cleaning Abrasives - Part 1: General Introduction and Classification.	ISO 11124-1
Specifications for non-metallic blast-cleaning abrasives	ISO 11126

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Copies can also be obtained from national standards organizations