

阿克苏诺贝尔防护涂料（苏州）有限公司 Akzo Nobel International Paint (Suzhou) Co., Ltd.	项目名称 PROJECT NAME	GE-Aramco 项目	
	ANIP 文件编号 ANIP DOC. No.		页码 Page 1/15 版次 REV 00
	文件编号 DOC. No.		

## 施工指导

01	Issue for Approve	2015-11-05	Jin Xiaomin					
版次 REV	说明 Description	日期 Date	编制 PRE'D	审核 Review	批准 Approve	日期 Date	审核 Review	批准 Approve
Coating Supplier 涂料供应商					Akzonobel International Paint (Suzhou) Co., Ltd			

## 1. Abbreviations and Standards References 缩写和标准引用

### 1.1. Abbreviations 缩写

DFT	Dry Film Thickness	干膜厚度
WFT	Wet Film Thickness	湿膜厚度
SSPC	Steel Structures Painting Council	钢结构涂装委员会
ISO	International Standard Organization	国际标准化组织
NACE	National Association of Corrosion Engineer	国家腐蚀工程师协会

### 1.2. Standards References 引用标准

ISO 8501-1	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness. 表面清洁度目测法评估
ISO 8502-3	Preparation of steel substrates before application of paints and related products - Test for the assessment of surface cleanliness - Assessment of dust on steel surfaces prepared for painting, pressure sensitive tape method. 表面清洁度测试评估—准备涂漆的钢材表面灰尘评估—压敏胶带法
ISO 8503	Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast cleaned substrates. 喷射清理表面粗糙度特征
ISO 11124	Preparation of steel substrates before application of paints and related products -- Specifications for metallic blast-cleaning abrasives -- Part 2: Chilled-iron grit -- Part 3: High-carbon cast-steel shot and grit 油漆和相关产品施工前钢材表面处理 – 金属喷砂清洁磨料的规定
ISO 11125	Preparation of steel substrates before application of paints and related products -- Test methods for metallic blast-cleaning abrasives 油漆和相关产品施工前钢材表面处理 – 金属喷砂清洁磨料测试方法
ISO 11126	Preparation of steel substrates before application of paints and related products -- Specifications for non-metallic blast-cleaning abrasives 油漆和相关产品施工前钢材表面处理 – 非金属喷砂清洁磨料的规定
ISO 11127	Preparation of steel substrates before application of paints and related products -- Test methods for non-metallic blast-cleaning abrasives 油漆和相关产品施工前钢材表面处理 – 非金属喷砂清洁磨料测试方法
SSPC SP1	Solvent Cleaning 溶剂清洗
SSPC SP10	Near White Blast Cleaning 近白级喷射清理
SSPC PA 2	Measurement of Dry Film Thickness 干膜厚度测量方法
ISO 2808	Measurements of Film Thickness 漆膜厚度测量法
ISO 4628	Paints and varnishes - Pull-off test for adhesion 附着力拉开测试法

## 2. Paint specification 涂料配套方案

### 2.1. Surface preparation 表面处理

Grit blast all surface to ISO 8501-1 (1988) - Sa2½, with surface profile Rz 40 - 75 microns.

所有表面都要喷砂处理至 ISO 8501 (1988) Sa 2 ½，表面粗糙度达到 Rz40—75 微米。

## 2.2. Specification 配套

Coat 涂层	产品名称		漆膜厚度 $\mu\text{m}$	
			设计厚度	漆膜范围
Primer 底漆	Interzinc 22	无机硅酸富锌	75	50-75
Tiecoat 封闭漆	Intergard 475HS	环氧中涂漆	25	25
Stripe Coat 预涂	Intergard 475HS	环氧中涂漆	—	—
Mid-coat 中间漆	Intergard 475HS	环氧中涂漆	50	100-200
Stripe Coat 预涂	Interthane 990	聚氨酯面漆	—	—
Topcoat 面漆	Interthane 990	聚氨酯面漆	50	50-75
漆膜总厚度			200	225-350

## 2.3. Notes 注意

Intergard 475HS firstly act as mist coat applied onto the surface of Interzinc 22 to minimise bubbling and pinholes, then applied as intermediate coat.

在此 Intergard 475 首先是作为封闭漆施工于 Interzinc 22 表面来减少气泡和针孔的形成，然后才作为中间漆施工。

Stripe coats are to be applied as specified above specification.

预涂工作须照上面配套中规定的进行。

Refer to the Product Data Sheets for recommended overcoating intervals, pot life and curing requirements.

对于重涂间隔，混合使用寿命和固化要求，请参考相应产品说明书。

All thicknesses are to be checked by International's Technical Service Representative on site. Any substandard areas are to be rectified.

漆膜厚度将由国际油漆的技术服务工程师进行检测，任何低于标准的地方必须修正。

If spraying start from upper area, drys praying onto lower area must be removed before spraying.

如果喷涂从上方开始，下方通常会有漆雾，要求有人在喷漆前去除掉这些漆雾。

## 2.4. Application 施工方法

Airless spraying is recommended

推荐使用高压无气喷涂

Brushing for stripe coating or small area touch-up only

刷涂仅用于预涂和小面积修补

## 3. General Site Requirements 现场要求概述

Prior to any work being carried out there are a number of conditions which must be met.

在工作开始前，现场必须达到一定的工作条件。

### 3.1. Power Source 动力

Generator and sufficient fuel for entire contract to power all the equipment required for the application, i.e. compressors, lighting etc.

发电机和足够的油料来保证所有的施工设备的运行，比如空压机，照明等。

### 3.2. Paint Storage Facility 涂料的贮存

Certain paint products have a minimum or maximum storage temperature and facilities should be made available to store the materials at the correct temperature prior to mixing and application.

涂料的贮存有最低和最高温度条件。施工前和施工中，必须搭建起设施保证涂料在正确的温度条件下贮存。

## 4. Surface Preparation 表面处理

### 4.1. Steelwork preparation 钢结构处理

In order to provide surfaces which will ensure optimum paint performance, prior to blast cleaning, weld defects such as pinholes and discontinuities shall be repaired. Sharp edges and flame-cut edges shall be reduced to  $R=2\text{mm}$  by grinding. Welds shall be smooth and free of all weld slag and weld spatter.

为了保证涂料发挥最性能，钢结构表面在喷砂前，电焊缺陷例如气孔和不连续焊等要修正好。锐边和火焰切割边缘打磨到半径 $R=2\text{mm}$ 。焊缝要光滑没有焊渣飞溅等。

### 4.2. Degreasing 除油

Prior to blasting, all deposits of grease or oil or humectants caused by the NDT test shall be removed from the surface in accordance with SSPC-SP1 "Solvent Cleaning".

喷砂前，油脂或因探伤拍片留下的润湿剂要根据 SSPC-SP1 “溶剂清洗”法清除。

### 4.3. Abrasives 磨料

Blasting abrasives shall be dry, clean and free from contaminants, which will not be detrimental to the performance of the coating. Abrasives used must meet specified requirements as ISO 11126 1-8 and will be tested according to ISO 11127 1-7. Beach sand shall not be used.

喷射用磨料要干燥，清洁无杂物，不能对涂料的性能有影响。所选用的磨料应当符合 ISO 11126 1-8 的规定，并根据 11127 1-7 进行测试。河砂将不得用于喷砂使用。

Size of abrasive particles for blast cleaning shall be such that the prepared surface profile height (anchor pattern profile) is in accordance with the requirements for the applicable coating system. The surface profile shall be graded in accordance with ISO 8503. To reach  $Rz\ 40-75\mu\text{m}$ , we recommend copper slag size 10/30 mesh.

磨料的大小要能够产生规定涂料系统要求的粗糙度。表面粗糙度级别根据 ISO8503 进行评估。要达到粗糙度  $Rz40-75$  微米，我们推荐的铜矿渣粒径为 10 / 30 目

Particular requirements for copper refinery slag abrasives.

铜矿渣的性能要求

Property 特性	Requirement 要求	Test method 测试方法
Apparent density, kg/dm <sup>3</sup> 表观密度	3,3 to 3,9	ISO/DIS 11127-3
Moh's hardness 莫氏硬度	Min. 6	ISO/DIS 11127-4
Moisture content % (m/m) 含水量	Max. 0,2	ISO/DIS 11127-5
Conductivity of aqueous extract, 水溶液的导电率 $\mu\text{S/cm}$	Max. 300	ISO/DIS 11127-6
Water soluble chlorides % (m/m)	Max. 0,0025	ISO/DIS 11127-7

No recycling of the used abrasive is allowed unless expressly approved by International's Technical Service Engineer onsite.

磨料不能循环使用，除非得到国际油漆现场服务工程师的认可。

#### 4.4. Blasting 喷砂

All steel surface shall be blasting cleaned to ISO 8501-1 Sa2 ½ with surface profile Rz 40-75 $\mu\text{m}$  according to ISO 8503. A medium G type comparator should be used for surface profile measurement.

钢材表面要求喷砂清理到 ISO 8501-1 Sa ½，粗糙度达到 Rz40-75 微米。可以使用粗糙度样板 G 类型来进行评估。

Compressed air used for blasting must be clean, oil free and dry. The pressure should be at least 7kg/cm<sup>2</sup> at nozzle. During the blasting operation care must be taken to prevent the possibility of oil and/or water to contaminate the blasted surface. Compressors must accordingly be fitted with efficient oil and water traps.

喷砂时注意防止油和 / 或水对喷砂后钢材表面的污渍。空压机必须安装油水分离器。用于喷砂使用的压缩空气必须清洁干燥，无油脂。喷口压力至少在 7kg/cm<sup>2</sup>。

The surface to be coated shall be clean, dry, free from oil/grease, and have the specified roughness and cleanliness until the first coat is applied. All dust must be removed completely. The quantity of dust shall be less than "Rating 3" according to ISO 8502-3.

喷砂后准备涂漆的钢材表面要清洁、干燥，无油脂，保持粗糙度和清洁度直到第一度漆喷涂。所有灰尘要求彻底清理，根据 ISO8502-3 灰尘量要小于 3 级。

Grits, dust and other contamination must be cleaned after blasting, especially on staging.

喷砂处理后的砂粒、灰尘和其它杂物，必须清除，尤其要注意脚手架的清洁。

Coatings shall be applied within 4hours of surface preparation and/or before rust bloom occurs. Should visible rusting occur or the cleaned surface becomes wet or otherwise contaminated, the surface shall be re-cleaned to the degree previously required.

表面处理后 4 个小时内，钢材表面在返黄前，就要涂漆。如果钢材表面有可见返锈现象，变湿或者被污染，要求重新清理到前面要求的级别。

## 5. Stripe Coating 预涂

Stripe coating is an essential part of good working practice, and as such should form part of any Tankcoating specification. The number and sequence of stripe coats are highlighted in the detailed product specification sheets. Stripe coats are applied to areas where it is difficult to get the required coverage, including but not limited to:

- Plate edges
- Welds
- Pipes
- Ladders
- Difficult access areas

预涂是良好工作方法的重要部分，应该成为所有储罐涂装施工的一部分。预涂的道数、次数等要在规格书中明确体现出来。预涂一般在那些难以达到要求的覆盖处在：包括但不限于下列部位：

- 自由边
- 焊缝
- 管路
- 梯子
- 难以触及的地方

## 6. Application of Primer Interzinc 22 底漆施工

### 6.1. Mixing 混合

Mixing ratio: Part A : Part B = 3.17:1(by volume)

The powder pack should always be added to the binder under agitation.

Once mixed it is recommended that the material is filtered using 100 mesh

混合比例：A 组分：B 组分=3.17：1（体积比）

锌粉要边倒入基料边进行机械搅拌，混合后建议使用 100 目滤网过滤。

### 6.2. Thinning 稀释

Interzinc 22 does not normally require thinning. In extreme circumstances, the addition of 5% of thinner GTA803 can be used to aid application. GTA803 would be added 10-15% for Air spraying.

通常不需要进行稀释，在特殊情况下，加入 5—10% 的 GTA803 将有助于施工。

Thinning ratio will be adjusted according to temperature, spray pump pressure.

稀释剂用量将根据温度，喷漆泵压力进行调整。

### 6.3. Pot life 混合使用时间

Temp. °C 温度	5°C	15°C	20°C	40°C
Potlife, 使用时间, 小时	10 hrs	8 hrs	4 hrs	2 hrs

Once the pot life has been exceeded, no attempt should be made to apply paint. Failure to do so may result in applied films which are prone to mudcracking, or poor curing.

一旦混合使用时间超过，不要再进行涂料的施工。这样做会导致漆膜开裂，固化不良等问题。

## 6.4. Application Methods 施工方法

Airless spray is recommended, the paint reservoir must have continuous mechanical agitation during application.

推荐使用高压无气喷涂，施工时储料罐必须不停地进行机械搅拌。

Tip size: 0.38~0.53mm(15"~21")

Pump ratio: 45:1,

Input pressure should be set to 3-4kg/cm<sup>2</sup>.

枪嘴孔径: 0.38~0.53mm(15"~21")

泵压比: 45:1

进气口压力: 3-4kg/cm<sup>2</sup>

Interzinc 22 should be airless sprayed at pressures lower than would be normal for other coatings of similar viscosity. If the pressure is too high a pock marked uneven surface will result.

Interzinc 22 在进行高压无气喷涂时，相同的粘度时，喷涂压力要低于其它涂料。如果压力过高，会导致漆膜麻点状不平整。

## 6.5. Dry Film Thickness

DFT of Interzinc 22 should be control min. 50µm and max.100µm. If Interzinc 22 exceeds max. DFT, mudcracking of the film may occur.

Interzinc 22 的漆膜厚度将控制在 50—100 微米之间，如果超过了最大干膜厚度，漆膜可能会开裂。

## 6.6. Curing 固化

The curing mechanism for Interzinc 22 relies heavily upon the presence of moisture in the atmosphere. Below 65% relative humidity, curing will be severely retarded, and below 50% will be severely retarded. Humidity may need to be increased by seam or fresh water spraying to curing.

Interzinc 22 的固化机理是依靠空气中的水分，相对湿度低于 65%，固化缓慢，低于 50%时固化严重受阻。这时可能需要喷洒清水来帮助固化。

The degree of curing should be checked by MEK test according to ASTM D4752 with rating 4. 漆膜固化程度按 ASTM D4752 的 MEK 测试法执行，要求达到 4 级。

## 6.7. Overcoating 重涂

If Interzinc 22 is not fully cured, or over-applied, then application of subsequent coat can lead to splitting problems.

如果 Interzinc 22 没有完全固化就进行覆涂,后道漆会有分层问题。

After weathering, interzinc 22 should be dry and free from all contamination and zinc salt before Overcoating. If zinc salts have formed on the surface they must be removed.

经过长时间的暴露风化，漆膜表面要干燥无污物和锌盐。如果表面已经形成锌盐，必须除去以后才能涂下道漆。

## 7. Application of Tie coat and intermediate coat – Intergard 475HS

封闭漆和中间漆的施工

In this cases, Intergard 475HS firstly act as mist coat applied onto the surface of Interzinc 22 to

minimise bubbling and pinholes, then applied as intermediate coat.

在这里，Intergard 475HS 首先作为封闭漆 25 微米施工在 Interzinc 22 表面，以减少起泡和针孔的形成，然后作为中间漆施工。

Before tiecoat application, Curing of Interzinc 22 must be checked according to ASTM D4752. Dry spraying and paint dust must be cleaned by fine sandpapering.

在中间漆喷涂前，必须按照 ASTM D4752 检查无机硅酸富锌底漆 Interzinc 22 的固化程度。干喷和漆雾必须用细砂纸轻轻磨去。

### 7.1. Mixing 混合

Mixing ratio: Part A : Part B=3:1 (by volume)

Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed it must be used within the working pot life specified.

(1) Agitate Base (Part A) with a power agitator.

(2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.

混合比：A 组分：B 组分=3：1（体积比）

涂料分两个包装，记着一定要按比例混合一套涂料，一套涂料混合好后，必须在规定的混合使用寿命内用完。

(1) 先使用机械搅拌器搅拌 A 组分

(2) 把全部的固化剂倒入基料 A 组分，机械搅拌均匀

### 7.2. Thinning

As tiecoat (DFT 25 $\mu$ m), Intergard 475HS must be thinned with 30-40% thinner of GTA007.

As intermediate coat (DFT 50 $\mu$ m), recommend thinning 20-30% with thinner GTA007.

Thinning ratio will be adjusted according to temperature, spray pump pressure.

用作中间漆（DFT50 微米），用稀释剂 GTA007 释 20—30%。

作用封闭漆（DFT25 微米），用稀释剂 GTA007 稀释 30—40%。

稀释剂用量将根据温度，喷漆泵压力进行调整。

### 7.3. Pot life 混合使用时间

Temp. °C 温度	5°C	15°C	20°C	40°C
Potlife, 使用时间, 小时	1 hrs	1 hrs	1 hrs	1 hrs

The paint can not be used once the pot life exceeds.

如果超过规定的混合使用寿命，涂料将不可以再使用。

When the temperature is above 25°C, the corresponding high temperature curing agent should be applied. Use of the topical grade curing agent will give a pot life of 2 hrs at temperatures between 25~40°C.

当温度超过 25°C 时，要使用相应的高温固化剂。热天使用的固化剂在 25—40°C 时，混合使用寿命可以达到 2 小时。



#### 7.4. Application 施工

Airless spraying would be preferred. A 45:1 ratio pump will be the minimum requirement and a 60:1 ratio pump will be preferable. The input pressure should be 5kg/cm<sup>2</sup>. Total output fluid pressure at spray tip not less than 190 kg/cm<sup>2</sup> (2,700 p.s.i.). Tip range: 0.53~0.63(21-25"). 推荐使用高压无气喷涂。

泵压比：至少 45:1，最好 60 : 1 以上

进气压力：至少 5 kg/cm<sup>2</sup>

喷涂压力：至少 190 kg/cm<sup>2</sup>

喷嘴孔径：0.53~0.63(21-25")

#### 7.5. Drying and overcoating

干燥和重涂

Temperature 温度	Touch Dry 表干, 小时	Hard Dry 硬干, 小时	Overcoating Interval with recommended topcoats 推荐面漆的重涂	
			Min. 小时	Max. 小时
5°C	1.5 hrs	16 hrs	16hrs	Extended, 无
15°C	1 ¼ hrs	10 hrs	10hrs	Extended, 无
25°C	1 hrs	5 hrs	5hrs	Extended, 无

Note: For curing at elevated temperatures an alternative curing agent is available.

注：高温要使用相应的高温固化剂。

#### Elevated temperature curing 高温下的固化

Temperature 温度	Touch Dry 表干	Hard Dry 硬干	Overcoating Interval with recommended topcoats 推荐面漆的重涂	
			Min. 小时	Max. 小时
25°C	1.5 hrs	6 hrs	6 hrs	Extended, 无
40°C	1 hrs	2 hrs	2 hrs	Extended, 无

After the application of the tie-coat, intermediate coat of Intergard 475HS should be applied after 2hrs.

封闭漆施工后在 2 小时就可喷涂中间漆。

After intermediate coat, Coating surface should be sanded by fine sandpaper (1#) to remove all defects and dry-spray particles, by this means, the finish coat can be applied onto the clean and smooth surfaces, form smooth fine finish appearance.

中间漆喷涂后，表面要求 1# 细砂纸打磨除去涂层缺陷和干喷粒子，这主要是为了面漆有一个光滑细腻的表面。

#### 8. Application of Topcoat – Interthane 990 面漆的施工

### 8.1. Mixing 混合

Mixing ratio: Part A :Part B = 6:1 (by volume)

混合比: A 组分 : B 组分 = 6 : 1 (体积比)

The bas component Part A should be mixed thoroughly by mechanical agitation and then the curing agent Part B poured in and the composite agitate thoroughly.

先对 A 组份 (基料) 进行机械搅拌均匀, 然后倒入固化剂彻底搅拌。

Always mix a complete unit in the proportions supplied. The curing agent is moisture sensitive. Once the curing agent container has been opened for partial mixing of a unit, when resealed the moisture in the air that replaces the liquid removed will begin reacting with the remainder of the curing agent.

请务必整套的涂料进行混合使用。因为固化剂对湿气比较敏感, 一旦固化剂桶打开后, 如果只是部分地使用固化剂, 重新盖上以后, 空气中的湿气就会留在桶内与余下的固化剂起反应。

### 8.2. Thinning 稀释

Normally no requirement for thinning, however, thinning by 5-10% with GTA713 can aid spraying application and provide a high gloss surface finish.

通常不需要进行稀释, 然而, 加入 5-10% 的稀释剂 GTA713 将有助于喷涂施工, 给予涂层光洁的表面。

### 8.3. Pot life 混合使用时间

Pot life after mixing as following:

混合使用时间如下:

Temp. 温度	5°C	15°C	20°C	40°C
Potlife, hrs 混合使用时间	12 小时	4 小时	2 小时	45 min. (分钟)

Once the pot life has been exceeded, no attempt should be made to apply paint.

一旦混合使用时间超过规定, 不要再试图使用该涂料。

### 8.4. Application 施工方法

Airless spray is always recommended.

Pump ratio: min. 45:1

Input pressure: min. 4-5 kg/cm<sup>2</sup>

Tip range: 0.32 – 0.45mm (12-18")

Min.Pressure at Nozzle:176kg/cm<sup>2</sup>

推荐使用高压无气喷涂。

喷漆泵压力: 至少 45 : 1

进气压力: 4-5 kg/cm<sup>2</sup>

枪嘴大小: 0.32 – 0.45mm (12-18")

最小枪口压力: 150kg/cm<sup>2</sup>

### 8.5. Drying/Overcoating 干燥和重涂间隔

Temperature 温度	Touch Dry 表干 (小时)	Hard Dry 硬干 (小时)	Overcoating Interval 重涂间隔, 小时	
			Min. 最小	Max. 最大
5°C	5 hrs	24 hrs	24 hrs	Extended 无
15°C	2.5 hrs	10 hrs	10 hrs	Extended 无
25°C	1.5 hrs	6 hrs	6 hrs	Extended 无
40	1 hrs	3 hrs	3 hrs	Extended 无

### 9. Repairs 修补

It is of great importance that all damage to the coating is repaired. Repair shall be started as soon as possible. Repair of mountings for staging, etc. must take place in connection with the dismantling of the staging, the tempo of which should be adjusted to the touch-up procedure.

涂层的修补是非常重要的，修补要尽快进行。在脚手架上的修补必须和拆架相协调，拆架的步骤要根据修补工作进行调整。

### 10. QC & QA 质量控制和质量保证

#### 10.1. Qualification of Coating Advisor 涂装技术服务工程师的资质

Coating Advisors from International Paint shall qualified as NACE coating inspector or equivalent. He will be present during all pre-preparation testing, surface preparation, coating application, initial cure of coating system, and during repair work. He will carry out the work in co-operation with the owner's representatives, supervisor and contractor/paint contractor.

国际油漆的涂装技术服务工程师都通过美国 NACE 或相似机构的认证。他将在现场参与表面处理前测试、表面处理、涂装施工、涂层的最初固化以及修补过程。他会与业主代表、监理和承包商 / 涂装分包商一起配合工作。

#### 10.2. The following tools and equipment are considered to be used for inspection in general:

- Surface profile comparator G – Grit
- Dry and Wet Film thickness gauge
- Instruments for climatic control
- Instruments for measurements of surface contamination
- Photographic
- Lamp
- Adhesion
- Safety equipment
- Miscellaneous additional equipment
- Applicable standards

在现场，一般使用的检查工具有：

- 表面粗糙度样板 “G”
- 干膜和湿膜测厚仪
- 气候条件检查的设备
- 表面污染物检测的设备
- 照相器材
- 灯

- 附着力测试
- 安全设施
- 多种其它设备
- 应用的标准

### 10.3. Check points 检查要点

#### 10.3.1. On site check points 现场检查要点

Tank condition: structures, cleaning, gas

Scaffolding: dust traps, cleaning, contact points, work spaces

储罐状态: 包括结构完整性、清洁状态和气体等

脚手架: 包括除尘清洁、与储罐的接触点、工作空间等

#### 10.3.2. Steelwork and cleaning check points 结构处理及清洁度检查要点

Spatters	飞溅
Laminations	叠片
Sharp Undercuts	咬边
Rough Welds	粗糙焊缝
Sharpedges	锐边
Porosity's in welds	焊缝的气孔
Welding smoke	焊烟
Oil and grease	油脂

#### 10.3.3. Surface Preparation Check Points 表面处理检查要点

Wrapping (before blasting)	包扎物(喷砂前)
Blasting wrapping (remove and change)	打砂后的包扎物 (去除后更换)
Degree of cleaning (Sa 2 ½)	清洁度, Sa 2 ½
Roughness profile (Rz 40-75µm)	粗糙度, Rz 40-75µm
Dust cleaning (Rating 3)	灰尘清洁度, 3 级
Oil and grease	油脂
Ambient conditions	环境条件
Air temperature	空气温度
Relative humidity	相对湿度
Steel temperature	钢板温度
Dew point	露点

#### 10.3.4. Check points during application 施工检查要点

Application equipment	施工设备
Ventilation system	通风系统
Wrapping	包扎物
Mixing, thinning,	混合, 稀释
Stirring	搅拌
Paint storage	涂料放置
Painter's Footcover	工人的脚套
Application schedule	施工计划

Stripe coating	预涂
WFT	湿膜厚度
Ambient conditions	环境条件
Air temperature	空气温度
Relative humidity	相对湿度
Steel temperature	钢板温度
Dew point	露点

#### 10.3.5. Check points for final inspection 完工检查要点

Finish: uniform colour, gloss, no sags, sticking spraying dust, contaminants

Imperfectings: full coverage, no pinholes, holidays and cavities

Holidays, pinholes: no rusty spots

DFT, according to min/max DFT in specification

完工面漆: 色泽均匀, 无流挂, 无漆雾, 无污染

缺陷: 完全覆盖, 无针孔, 无漏喷和气泡

漏喷和针孔: 没有锈点

干膜最度: 根据规格书的最低 / 最高厚度

#### 10.4. Climate control 气候控制

No final blast-cleaning or coating application shall be done if the relative humidity is more than 85% and when the steel temperature is less than 3°C above the dew point.

如果相对湿度超过 85% 或者钢板温度低于露点 3°C, 不要进行最终喷砂或涂漆施工。

Paint application is not allowed when raining, snowing, water or ice on the substrates, or strong wind, heavy fog around.

当下雨下雪, 表面有水有冰, 或者大风大雾时, 不能进行涂漆施工。

Before application of Interthane 990, RH should be controlled under 80% to avoid the blanching and loss of gloss of the finish coat.

聚氨酯面漆 Interthane 990 在施工时, 相对湿度应该控制在 80% 以内, 以免表面失光发花。

#### 10.5. Wet Film Thickness 湿膜厚度

WFT must be measured immediately after application since evaporation of solvents will effect the reading if not performed at once. WFT measurements shall be performed in accordance with ISO 2801:1997 Method No 1 (Appendix I).

湿膜厚在施工后应当立即检测, 因为若不及时执行, 溶剂的挥发将影响到读数。湿膜厚的检测应当依据 ISO 2801:1997 方法 No1 (附录 1) 执行。

WFT measurements as specified to be carried out alongside with checking of paint consumption, taking into consideration specified dry film thickness and volume solids of the paint.

湿膜厚的检测可反映油漆用量的检查, 同时也有助于控制规定的干膜厚和反映油漆的固体含量。

#### 10.6. Dry Film Thickness 干膜厚度

DFT measurements shall be carried out after completion of and sufficient curing of each coat applied.

干膜厚应当在施工的每一涂层完成和充分固化后执行检测。

Recommended, non-destructive methods for the determination of DFT on metallic, magnetic and non-magnetic substrates are described in Method 6 and 7 of ISO 2801:1997. Calibration of instrument to be performed according to Method No 10 of the same standard.

对于金属，磁性和非磁性表面的干膜厚测定的推荐的，非破坏的方法可参照 ISO 2801:1997 中的方法 6 和 7。仪器的校准可按同一标准的方法 10 执行。

Number of spot readings to be performed is decided from case to case since design of coated construction must be taken into consideration. One spot reading is the average of 3 readings made approximately 26mm apart.

读数点的数量应当根据不同的情况来执行，因为需要考虑到被涂装结构的不同设计。一点的读数应当是距其 26 毫米范围内其它三点的平均值。

Destructive methods to determine DFT of coating systems is not recommended but may be used if necessary to verify compliance with specifications.

不推荐使用破坏性方法测定干膜厚，但是为了检验是否符合配套而必须时也可使用。

DFT inspection should be carried out 90-10 rules, means 90% readings should be reach Specified DFT, and remaining 10% readings should reach 90% of specified DFT. DFT inspection will be carried out according ISO 2808 and/or SSPC PA 2.

干膜厚度的测量按照两个 90% 执行，即 90% 的测量点要达到规定的干膜的厚度，余下 10% 的测量点要达到规定膜厚度的 90%。干膜厚度的检查按照 ISO2808 和 SSPC PA2 执行。

## 10.7. Adhesion and cohesion

The measurement of adhesive and cohesive properties of a coating system is destructive and is normally performed in connection with complaints, in pre-qualification testing, when specified or on reference areas, and not as a routine test.

涂层系统的附着力和层间结合力测试是一种破坏性的，通常只是发生投诉，质量认可测试时作用于指定或参照区域，并非作为一种常规测试。

A recommended procedure for the assessment of adhesion/cohesion is specified in ISO 4624:1978 (Appendix I). For information about apparatus to be used – contact International Paints.

附着力/层间结合力的测试方法由 ISO 4624:1978（附录 1）中给定推荐步骤。设备的相关资料可咨询国际油漆公司。

## 11. Safety

### 11.1. Safety matters shall be included as a topic in the kick-off meeting. All safety requirements and rules shall be agreed upon and made available for all parties involved.

安全事项应当作为一项议题包括在准备会议中。所有的安全要求和规则应当被各方同意并是可操作的。

### 11.2. The Paint Contractor should be prequalified and his operational staff certified through a plant safety programme to ensure that they are familiar with safety and operational procedures and trained on plant

emergency procedures.

通过一整套的安全程序，涂装承包商需要被认证并且其操作人员应被认可以确保他们熟悉安全和操作程序并且训练有素的应对整个应急程序。

- 11.3. Before coating work starts, Contractor and/or Owners Representative, whatever is applicable, shall review the work with the Paint Contractor to ensure that no procedure is about to take place which could endanger other workers in the vicinity.

在涂装工作开始前，无论承包商和/或业主代表中的任何一方，皆可会同涂装承包商确认整个程序不会产生危及邻近区域工作的其他人员的安全。

- 11.4. Areas where work is in progress must be clearly identified. Hazard warnings showing “EXPLOSION RISK” and “NO SMOKING” must be placed clearly visible during coating operations and shall not be removed before the concentration of flammable vapours is too low to cause a fire hazard.

正进行工作的区域必须明确划分和标示出。在涂装操作中危险警告应包括“易爆”和“禁止吸烟”并被安放在易于看见的部位，同时，在未确定可燃性蒸汽不会引发火警时不允许移除。

- 11.5. All equipment in use must be earthed properly. This includes but is not limited to compressors, blasting and spraying equipment.

所有使用的设备必须正确接地。这包括，但不仅限于空压机，喷砂和喷涂设备。

- 11.6. The International Coating Advisor shall be provided with safety regulations valid for the plant. Coating Advisor also shall not attend inspection against safety regulations and shall not confirm any paintwork in such cases.

国际油漆的技术服务工程师有权获得整个相关工作的安全规范。他将不出席任何违反安全规范的质量检查，并对该种情况下的涂装工作不作肯定。