Issue date : June 2016

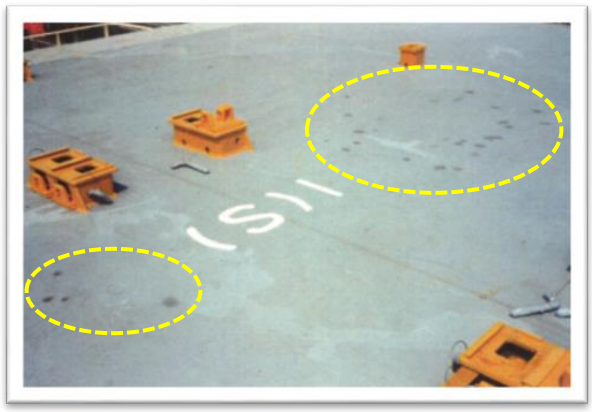
Preparation of steel substrates

The performance of protective coating is significantly affected by the state of the steel surface immediately before paint application. The principal factors that are known to influence this performance are (1) the presence of rust and mill scale, (2) the presence of surface contaminants, including salts, dusts, oils and greases and (3) the surface profile. This part describes removal of contaminants and preparation grade of welds, edges and other areas, on steel surface with imperfections. Such imperfections can become visible before and/or after secondary surface preparation. The preparation grades are described in accordance with ISO8501-3:2006

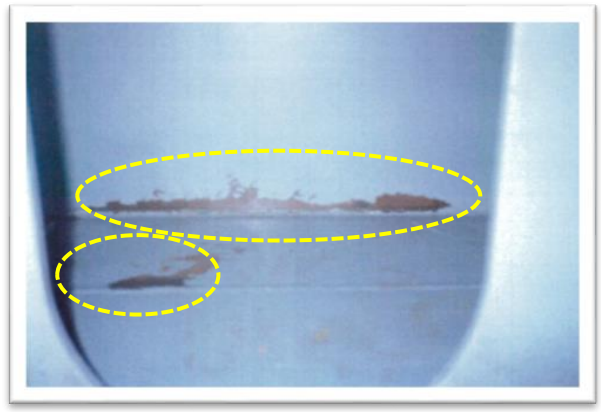
1. Removal of contaminants

(1) Oil / Grease

Oil and/or grease on surface shall be removed. This is best done with a water-based, alkaline degreaser, followed by fresh water hosing (cold or hot).



Surface contaminated with oil and / or grease. Oil / greacse contaminants cause peeling / detatchment.



Peeling of epoxy coating applied over oil / grease contaminants.

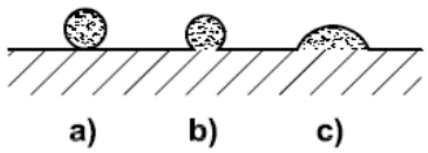
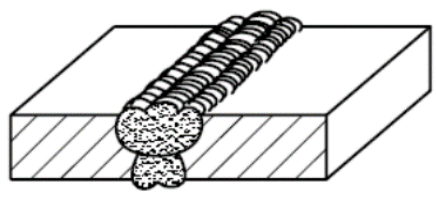
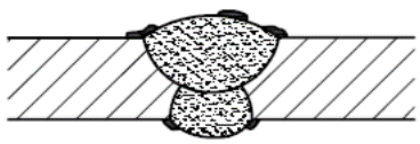
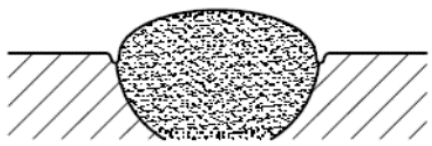
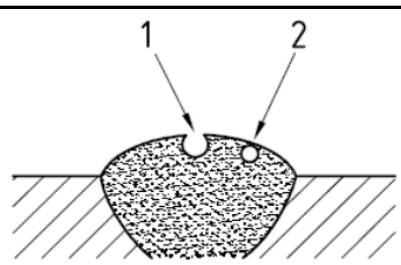
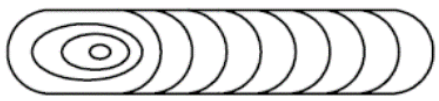
(2) Soluble salts

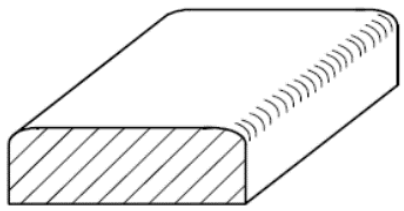
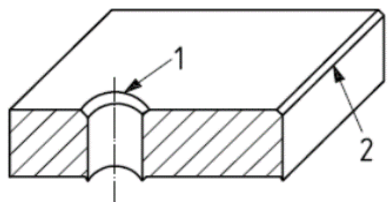
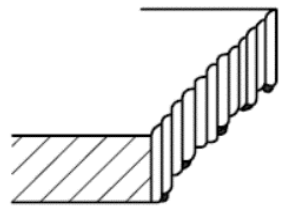
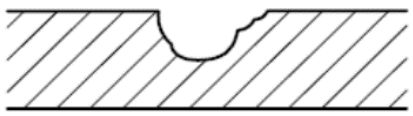
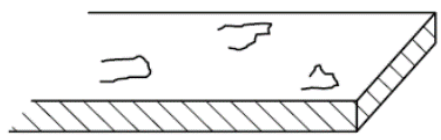
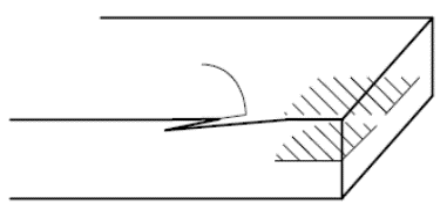
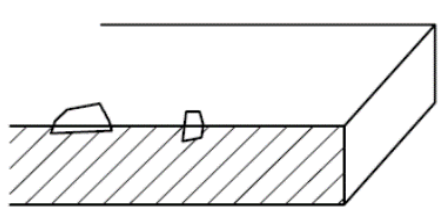
Soluble salts shall be removed prior to application. The surface to be coated shall be hosed with fresh water and allowed to dry prior to application of the paint system.

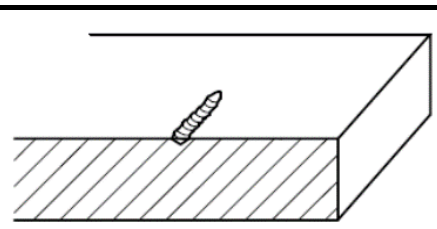
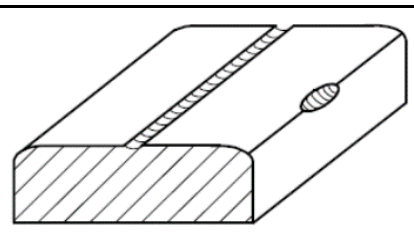
(3) Miscellaneous

Visible dust shall be removed with vacuum cleaning.

2. Preparation of steel substrates

Type of imperfection		Preparation grades		
Description	Illustration	P1	P2	P3
1 : Welds				
Welding spatter		Surface shall be free of all loose welding spatter【see a) 】	Surface shall be free of all loose and lightly adhering welding spater 【see a) and b) 】	Surface shall be free of all welding spatter
Weld ripple/profile		No preparation	Surface shall be dressed (e.g. by grinding) to remove irregular and sharpedged profiles	Surface shall be fully dressed, i.e.smooth
Welding slag		Surface shall be free from welding slag	Surface shall be free from welding slag	Surface shall be free from welding slag
Undercut		No preparation	Surface shall be free from sharp or deep undercuts	Surface shall be fredd from undercuts
Weld porosity	 Key * 1 : visible 2 : invisible(might open after abrasive blast cleaning)	No preparation	Surface pores shall be sufficiently open to allow penetration of paint, or dressed out	Surface shall be free from visible pores
End craters		No preparation	End craters shall be free from sharp edges	Surface shall be free from visible pores

Type of imperfection		Preparation grades		
Description	Illustration	P1	P2	P3
2 : Edges				
Rolled edges		No preparation	No preparation	Edges shall be rounded with a radius of not less than 2 mm (see ISO 12944-3)
Edges made by punching shearing ,sawing or drilling	 1 : punching 2 : shearing	No part of the edge shall be sharp; the edge shall be free from fins	No part of the edge shall be sharp; the edge shall be free from fins	Edges shall be rounded with a radius of not less than 2 mm (see ISO 12944-4)
Thermally cud edges		Surface shall be free of slag and loose scale	No part of the edge shall have an irregular profile	Cut face shall be removed and edges shall be rounded with a radius of not less than 2 mm (see ISO 12944-3)
3 : Surface generally				
Pits and craters		Pits and craters shall be sufficiently open to allowpenetration of paint	Pits and craters shall be sufficiently open to allow penetration of paint	Surface shall be free of pits and craters
Shelding (Note: In English-language usage,the terms "silveres"and "hackles" are also used to describe this type of imperfection.		Surface shall be free from lifted material	Surface shall be free from visible shelling	Surface shall be free from visible shelling
Roll overs/roll laminations/cut laminations		Surface shall be free from lifted material	Surface shall bee free from visible roll-overs/laminations	Surface shall bee free from visible roll-overs/laminations
Rolled-in extraneous matter		Surface shall be free from rolled-in extraneous matter	Surface shall be free from rolled-in extraneous matter	Surface shall be free from rolled-in extraneous matter

Type of imperfection		Preparation grades		
Description	Illustration	P1	P2	P3
Grooves and gouges fromed by mechanical action		No preparation	The radius of grooves and gouges shall be not less than 2 mm	Surface shall be free from grooves
Indentaions and roll marks		No preparation	Indenttions and roll marks shall be smooth	Surface shall be free from indentations and roll marks