

MATERIAL DATA SHEET			MDS D45	Rev. 4
TYPE OF MATERIAL: Ferritic / Austenitic Stainless Steel, Type 22Cr duplex				
PRODUCT	STANDARD	GRADE	ACCEPT. CLASS	SUPPL. REQ.
Plates	ASTM A 240	UNS S31803 UNS S32205	-	S1
1. SCOPE	This MDS specifies the selected options in the referred standard and additional requirements which shall be added or supersede the corresponding requirements in the referred standard.			
2. QUALIFICATION	Manufacturers and the manufacturing process used for manufacturing of product to this MDS shall be qualified in accordance with NORSOK Standard M-650.			
3. MANUFACTURING PROCESS	The manufacturing of products according to this MDS shall be carried out according to the M-650 qualified Manufacturing Procedure.			
4. STEEL MAKING	The steel melt shall be refined with AOD or equivalent.			
5. HEAT TREATMENT	The plates shall be solution annealed followed by water quenching.			
6. CHEMICAL COMPOSITION	UNS S 31803: N = 0.14 - 0.20 %			
7. IMPACT TESTING	Charpy V-notch testing according to ASTM A 370 at - 46 °C is required for the thickness ≥ 6 mm. The minimum absorbed energy shall satisfy 45 J average and 35 J single. Reduction factors for sub-size specimens shall be: 7.5 mm - 5/6 and 5 mm - 2/3.			
8. MICROGRAPHIC EXAMINATION	The micrographic examination shall cover the near surfaces and mid-thickness region. The ferrite content shall be determined according to ASTM E 562 or equivalent and shall be within 35 -55 %. The microstructure, as examined at minimum 400 X magnification on a suitably etched specimen, shall be free from intermetallic phases and precipitates.			
9. EXTENT OF TESTING	Impact test, tensile test, hardness test and micrographic examination shall be carried out for each heat, nominal thickness and heat treatment load. For heat treatment in continuous furnace a heat treatment load is defined as all plates heat treated continuously in the same furnace, of the same heat and nominal thickness.			
10. TEST SAMPLING	Samples for production testing shall realistically reflect the properties in the actual components. Tensile test specimen shall be sampled in transverse direction in accordance with ASTM E 8. Impact specimens shall be taken at mid-thickness position in transverse direction.			
11. SURFACE FINISH	White pickled.			
12. REPAIR OF DEFECTS	Weld repair is not acceptable.			
13. MARKING	The component shall be marked to ensure full traceability to melt and heat treatment lot.			
14. CERTIFICATION	<p>The material manufacturer shall have a quality system certified in accordance with ISO 9001 and the system shall have undergone a specific assessment for the relevant materials.</p> <p>The material certificate shall be in accordance with EN 10204 Type 3.1, and shall include the following information:</p> <ul style="list-style-type: none"> - Steel manufacturer, melting and refining practice. - Heat treatment condition (Solution annealing temperature and holding time shall be stated.) 			