



Mill Test Certificate

Order No. : 01S3858620
 Supplier : HANWHA CORPORATION
 Customer : DUFERCO S.A.

PO No. : 01S3858620
 Commodity : PLATE
 Spec & Type : EN10025-2-S355J2+N

Certificate No. : 190920-FP01KS-0008A1-0001
 Date of Issue : Oct, 07, 2019

UT 20.L. 056
 GR 44921(SZ)
ONIRAM, LDA
 DEP. QUALIDADE
 RECEPCAO

Size	Product No.	Quantity	Weight (kg)	Heat No.	Position	Tensile Test			Impact Test	Division	Chemical Composition																
						YP (MPa)	TS (%)	EL (%)			V Notch -20°C Energy (Joule)	C (%)	SI (%)	Mn (%)	P (%)	S (%)	Cr (%)	NI (%)	B (ppm)	Cu (%)	Mo (%)	N (ppm)	Nb (%)	TI (%)	V (%)		
12x2500x6000	PP33748103	1	1,413	SB60947	T	456	572	30	1: 257 2: 237 3: 146	L	0.1554	0.348	1.410	0.0137	0.0016	0.025	0.011	2	0.010	0.004	36	0.025	0.0138	0.003			
12x2500x6000	PP33239306-9307	2	2,826	SU36138	T	465	562	27	1: 224 2: 228 3: 228	P	0.1440	0.342	1.412	0.0122	0.0012	0.022	0.012	1	0.010	0.002	32	0.021	0.0129	0.002			
12x2500x6000	PP33611501-1507	7	9,891	SU36173	T	455	566	28	A: 213 1: 219 2: 233 3: 216	L	0.1520	0.335	1.411	0.0083	0.0019	0.015	0.007	3	0.012	0.002	32	0.025	0.0127	0.002			
12x2500x6000	PP34047705-7706	2	2,826	SU36999	T	463	572	30	A: 227 1: 189 2: 188 3: 158	P	0.1473	0.324	1.408	0.0080	0.0019	0.015	0.009	1	0.012	0.001	29	0.025	0.0134	0.001			
12x2500x6000	PP33863601-3606	6	8,478	SU37009	T	467	561	28	A: 223 1: 189 2: 240 3: 233	L	0.1541	0.345	1.375	0.0121	0.0017	0.021	0.010	3	0.032	0.002	34	0.023	0.0134	0.002			
12x2500x6000	PP33747801-7808	8	14,136	SB64085	T	461	561	31	A: 178 1: 240 2: 240 3: 230	P	0.1519	0.344	1.365	0.0118	0.0019	0.019	0.011	1	0.032	0.002	32	0.022	0.0131	0.002			
*** Sub Total (Q10) ***		18	25,434 (kg)																								
*** Heat Treatment ***		Normalizing rolling ***																									
15x2500x6000		PP33747801-7808																									
15x2500x6000		SB64085																									
15x2500x6000		T																									
15x2500x6000		461 561 31																									
15x2500x6000		1: 256 2: 250 3: 230																									
15x2500x6000		A: 245																									

* Position - T : Top, M : Middle, B : Bottom
 * Tensile Test Direction : Transversal, Gauge Length : 5.65 √A. (Rectangular),
 YP Method : Upper Point
 * Impact Test Direction : Surface Longitudinal, Full-Size : 10mmX10mm
 * Division - L : Ladle Analysis, P : Products Analysis
 * Supply Condition : As-Rolled unless otherwise Heat Treated

We hereby certify that the material herein has been made in accordance with the order and above specification.
 This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
 This material has been made by vacuum degassing process.
 No repair welding was performed to the products. Test Certificate is issued according to EN10204 3.1.
 Melted and Manufactured in Republic of Korea

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Signature: *[Handwritten Signature]*
 DUFERCO S.A.

CE 0038/CPRMUM/1210003/1 Surveyor To :

Order No. : 01S3858620

PO No. : 01S3858620

Supplier : HANWHA CORPORATION

Commodity : PLATE

Customer : DUFERCO S.A.

Spec & Type : EN10025-2 S355J2+N

Product No.	Division	SoI-Al (%)	CEQ (%)
PP33748103	L P	0.035 0.035	0.40
PP33239306-9307	L P	0.032 0.032	0.39
PP33611501-1507	L P	0.029 0.030	0.39
PP34047705-7706	L P	0.031 0.030	0.39
PP33883601-3606	L P	0.029 0.029	0.39
*** Sub Total (010) ***		18	25,434 (kg)
PP33747801-7808	L P	0.033 0.033	0.39

$$CEQ (G) = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5$$

We hereby certify that the material herein has been made in accordance with the order and above specification. This material has been fully killed and made by basic oxygen process. This material is fine grained steel. This material has been made by vacuum degassing process. No repair welding was performed to the products. Test Certificate is issued according to EN10204 3.1. Melted and Manufactured in Republic of Korea

POSCO - Produtos Siderurgicos, S.A.
Departamento de Qualidade

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

CE 0038/CPR/MUM/1210003/1 Surveyor To :

Ko Jae Gon
Chief of material testing section