

FLM-005-7  
**PROCARSA, S.A. DE C.V.**

**CERTIFICADO DE CALIDAD  
 DE PRUEBAS MECANICAS Y ANALISIS QUIMICO**  
 QUALITY CERTIFICATE OF MECHANICAL TESTS AND CHEMICAL ANALYSES

CLIENTE: PLESA ANAHUAC Y CIAS. S.A. DE C.V.  
 CUSTOMER:  
 PEDIDO CLIENTE / P.O.  
 PEDIDO INTERNO / I.O. 15553  
 PARTIDA (S)  
 ITEMS 510920-60

NUMERO PTM-03530-2013  
 NUMBER  
 FECHA ABRIL 23, 2013  
 DATE

DIAMETRO EXTERIOR : 14" ESPESOR DE PARED : 0.375" GRADO : API 5L X-42 PRESION HIDROSTATICA: 1,920 PSI 10 Segundos un a vez  
 OUTSIDE DIAMETER : 14" WALL THICKNESS : 0.375" GRADE : API 5L X-42 PSL1 HIDROSTATIC TEST: 135 Kg/cm<sup>2</sup> 1,920 PSI 10 Segundos un a vez

| REQUERIMIENTOS DE PRUEBAS DE TENSION / TENSILE TEST REQUIREMENTS |                                   |          |           | REQUERIMIENTOS DE ANALISIS QUIMICO % EN PESO / CHEMICAL ANALYSES BY PERCENTAGE OF WEIGHT REQUIREMENTS |           |           |           |     |      |           |     |           |     |     |           |           |           |     |        |     |     |
|------------------------------------------------------------------|-----------------------------------|----------|-----------|-------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----|------|-----------|-----|-----------|-----|-----|-----------|-----------|-----------|-----|--------|-----|-----|
| LIMITE ELASTICO / YIELD STRENGTH                                 | ULTIMA TENSION / TENSILE STRENGTH | % ELONG. | L.E./U.T. | C                                                                                                     | Mn        | P         | S         | Cb  | Cb+V | Cb+V+Ti   | Si  | Cu        | Al  | Ca  | Cr        | Ni        | Mo        | N   | CE IIW | C   |     |
| 42100 PSI MIN.                                                   | 60200 PSI MIN.                    | 28 min.  | ---       | 0.260 max                                                                                             | 1.300 max | 0.030 max | 0.030 max | --- | ---  | 0.150 max | --- | 0.500 max | --- | --- | 0.500 max | 0.500 max | 0.150 max | --- | ---    | --- | --- |

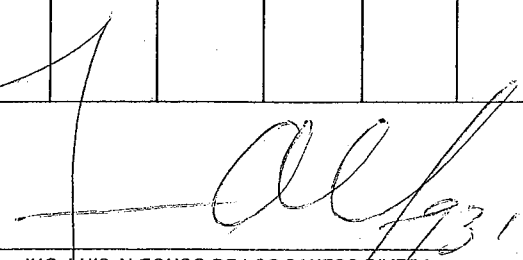
| NUM.PROBETA DESCRIPTION | COLADA HEAT | LIMITE ELASTICO YIELD STRENGTH (P.S.I.) | ULTIMA TENSION TENSILE STRENGTH (P.S.I.) | % ELONG. 2" | L.E./U.T. Y.S/T.S | C     | Mn   | P     | S     | Cb    | V      | Ti    | Si    | Cu    | Al    | Ca    | Cr    | Ni    | Mo    | N      | CE IIW | C |
|-------------------------|-------------|-----------------------------------------|------------------------------------------|-------------|-------------------|-------|------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|---|
| 4-14 Tc<br>Ts           | 120182      | 53 003                                  | 62 384                                   | 41          | 0.84 H            | 0.117 | 0.81 | 0.016 | 0.007 | 0.001 | 0.0020 | 0.004 | 0.229 | 0.032 | 0.028 | 0.003 | 0.023 | 0.022 | 0.007 | 0.0057 |        |   |
|                         |             |                                         | 68 395                                   |             | P                 | 0.110 | 0.81 | 0.014 | 0.006 | 0.001 | 0.0034 | 0.003 | 0.220 | 0.031 | 0.030 | 0.004 | 0.024 | 0.024 | 0.004 | 0.0058 |        |   |
| 7-3 Tc<br>Ts            | 120190      | 51 230                                  | 64 999                                   | 45          | 0.78 H            | 0.100 | 0.83 | 0.013 | 0.008 | 0.002 | 0.0020 | 0.005 | 0.239 | 0.023 | 0.050 | 0.002 | 0.013 | 0.021 | 0.007 | 0.0057 |        |   |
|                         |             |                                         | 67 263                                   |             | P                 | 0.097 | 0.82 | 0.012 | 0.010 | 0.002 | 0.0042 | 0.004 | 0.230 | 0.023 | 0.053 | 0.003 | 0.016 | 0.023 | 0.004 | 0.0055 |        |   |
| 3-10 Tc<br>Ts           | 219746      | 51 067                                  | 60 794                                   | 45          | 0.83 H            | 0.100 | 0.78 | 0.014 | 0.008 | 0.002 | 0.0020 | 0.003 | 0.211 | 0.039 | 0.037 | 0.002 | 0.032 | 0.023 | 0.006 | 0.0060 |        |   |
|                         |             |                                         | 64 876                                   |             | P                 | 0.130 | 0.79 | 0.010 | 0.007 | 0.003 | 0.0020 | 0.003 | 0.220 | 0.030 | 0.044 | 0.003 | 0.020 | 0.022 | 0.004 | 0.0052 |        |   |

TIPO DE TUBO : HFW  
 METODO DE INSPECCION NO DESTRUCTIVO : ULTRASONIDO  
 TIPO Y TAMAÑO DEL INDICADOR DE REFERENCIA : TALADRO DE 1/8" Y RANURA N10  
 TEMP. MINIMA DE TRAT. TERMICO PARA EL CORDON DE SOLD. : 1120 °C  
 TIPO DE MUESTRA PARA PRUEBA DE TENSION : RECTANGULAR PLANA  
 TAMAÑO DE MUESTRA PARA PRUEBA DE TENSION : SECCION REDUCIDA A 1 1/2"  
 ORIENTACION DE MUESTRA PARA PRUEBA DE TENSION : TRANSVERSAL  
 LOCALIZACION DE MUESTRA PARA PRUEBA DE TENSION : SOLDADURA Y 180°  
 EXTREMOS : BISELADOS  
 CONDICION DE LIBERACION : M

Tc : Tensión en cuerpo  
 Ts : Tension en soldadura  
 H : Análisis de olla  
 P : Análisis de producto

CERTIFICAMOS QUE LA TUBERIA AQUÍ DESCRITA CUMPLE Y HA SIDO FABRICADA, MUESTREADA, PROBADA E INSPECCIONADA DE ACUERDO CON LOS REQUISITOS APLICABLES DE LA ESPECIFICACION:  
 ANSI / ESPECIFICACION API 5L  
 44ª EDICION, OCTUBRE 1, 2007  
 FECHA EFECTIVA : OCTUBRE 1, 2008

WE CERTIFY THAT THE ABOVE DESCRIBED PIPE HAS BEEN MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATION, AND MEETS THE APPLICABLE REQUIREMENTS THEREIN

  
 ING. LUIS ALFONSO DE LOS SANTOS RIVERA  
 JEFE DE LABORATORIO METALURGICO  
 METALLURGICAL LABORATORY CHIEF