



# OE CROMO E 225 V

## SMAW PROCESS

### PRODUCT DATA SHEET

Dott. Ing. A. Bertoni



**INDEX**

<b>1</b>	<b>TYPE OF PRODUCT</b>	<b>3</b>
<b>2</b>	<b>PRODUCT CHARACTERISTICS</b>	<b>3</b>
2.1	SIZES:	ERREUR ! SIGNET NON DEFINI.
2.2	DIFFUSIBLE HYDROGEN:	3
2.3	CHEMICAL ANALYSIS:	4
2.4	WELDABILTY:	4
<b>3</b>	<b>ALL WELD METAL REQUIREMENTS</b>	<b>4</b>
3.1	CHEMICAL COMPOSITION:	5
3.2	MECHANICAL PROPERTIES:	5
<b>4</b>	<b>APPLICATION</b>	<b>ERREUR ! SIGNET NON DEFINI.</b>
4.1	BASE MATERIAL STANDARD :	6
4.2	ALL WELD METAL CHARACTERISATION :	6
<b>5</b>	<b>ANNEX LIST</b>	<b>8</b>

## 1 Applications

### 1.1 Base material standard:

## 2 TYPE OF PRODUCT :

### OE CROMO E 225 V

OE CROMO E 225V is a special basic stick electrode manufactured with homogeneous core wire. It was developed for application in which the weld metal is required to guarantee excellent impact properties after Step Cooling heat treatment.

#### Classification:

- ASME IIC - AWS 5.5 : E 9015-G

## 3 PRODUCT CHARACTERISTICS

### 2.1 Sizes:

OE CROMO E 225 V – according AWS 5.5

Diameter x length (mm)
3,25 x 350
4,0 x 450
5,0 x 450

*Packaging : carton boxes or vacuum packing*

### 3.2 Diffusible Hydrogen:

OE CROMO E 225V

- Diffusible Hydrogen : < 5 ml/100 g; determined in accordance with AWS  
A 4.3-93

### 3.3 Chemical analysis :

#### **OE CROMO E 225 V**

The weld metal deposit is in accordance with ASME II-C AWS 5.5 and ASME VIII Appendix 26

The chemical analysis of both wire and weld deposit is very pure and all the tramp elements and impurities (As, Sb, Sn, P, S, Cu,...) are strictly under control.

### 3.4 Weldability :

The OE CROMO E225V shows a good weldability in DC+ , it is an all positional stick electrode.

The slag removal detachability permits good performance also with narrow gap bevel preparation .

## 4 **ALL WELD METAL REQUIREMENTS**

The chemical analysis and the mechanical properties have been determined in accordance with AWS 5.5 requirements (battered bevel preparation).

PWHT min	705 °C	8 Hrs
PWHT min + SC	705 °C	8 Hrs + SC
PWHT MAX	705 °C	30 Hrs

See Step Cooling diagram in Annex 1

**4.1 All weld metal chemical analysis range :**

:

C	Mn	Si	P	S	Cr	Mo	Ni	As	Sb	Sn	Cu	V	Nb	X	J
0,13 max	0,9 max	0,25 max	0,01 max	0,01 max	2 – 2,5	0,9- 1,1	0,2 max	0,01 max	0,01 max	0,01 max	0,20 max	0,2- 0,35	0,01- 0,025	15 max	150 max

**4.2 Mechanical Properties :**

Mechanical properties are in accordance with ASME II-C AWS 5.5 and ASME VIII Appendix 26 – API Recommended Practice 934.

***Tensile test at R.T. after PWHT min.***

TS (MPa)	YS (MPa)	E % (5d)	Z %	YS/TS
590 -750	> 414	> 18	-	-

***Tensile test at + 454°C after PWHT MAX***

TS (MPa)	YS (MPa)	E % (5d)	Z %	YS/TS
	> 350	-	-	-

***Kv Impact test after PWHT min***

Test Temperature	- 18°C	- 29°C	- 40°C	- 50°C	- 60°C
Kv (J)	-	54	-	-	-

**Impact properties after Step Cooling**

Cv54 + A ( $\Delta$  Cv54)  $\leq$  10°C

A can be 2,5 or 3

**4 All weld metal characterisation (test values)****WELDING PARAMETERS**

<i>Wire Ø (mm)</i>	<i>WELDING POSITION</i>	<i>Type of CURREN T</i>	<i>Current (A)</i>	<i>Voltage (V)</i>	<i>Welding speed (mm/min)</i>	<i>HI (kJ/mm)</i>	<i>Preheat Interpass (°C)</i>
<i>4,0</i>	<i>1G</i>	<i>DC+</i>	<i>160</i>	<i>25</i>	<i>200</i>	<i>1,2</i>	<i>200 – 250°c</i>

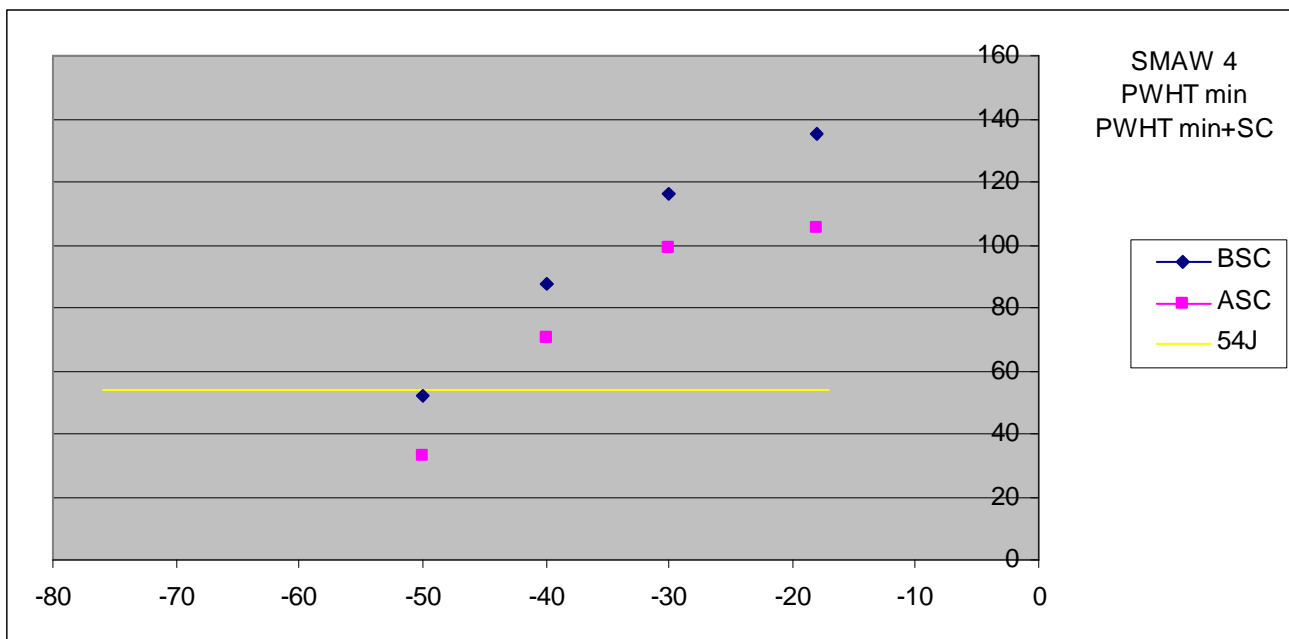
**CHEMICAL ANALYSIS**

<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>P</b>	<b>S</b>	<b>Cr</b>	<b>Mo</b>	<b>Ni</b>	<b>As</b>	<b>Sb</b>	<b>Sn</b>	<b>Cu</b>	<b>V</b>	<b>Nb</b>	<b>X</b>	<b>J</b>	<b>PE</b>
0,10	0,65	0,19	0,004	0,004	2,34	1,06	0,12	0,001	0,001	0,001	0,036	0,26	0,012	4	42	2,8

**MECHANICAL TEST RESULTS**

	<i>705°C X 8Hrs</i>	<i>705°C X 30Hrs</i>	<i>705°C X 8Hrs + SC</i>
<i>YS (MPa) r.t.</i>	<i>610</i>	<i>550</i>	<i>-</i>
<i>TS (MPa) r.t.</i>	<i>690</i>	<i>652</i>	<i>-</i>
<i>E (%) r.t.</i>	<i>19</i>	<i>24</i>	<i>-</i>
<i>TS (Mpa) + 454°C</i>	<i>-</i>	<i>531</i>	<i>-</i>
<i>Kv (J) @ -20°C</i>	<i>117-145-143</i>	<i>139-124-127</i>	<i>91-108-119</i>
<i>Kv (J) @ -30°C</i>	<i>115-126-108</i>	<i>162-152-154</i>	<i>109-64-124</i>
<i>Hv 10</i>	<i>220</i>	<i>-</i>	<i>-</i>

**Impact transition test temperature before and after Step Cooling**



$$Cv54 + A (\Delta Cv54) \leq 10^{\circ}\text{C}$$

A can be 2,5 or 3

$$-49 + 2,5 (49-44) = -36,5^{\circ}\text{C}$$

## 5 ANNEX LIST

ANNEX 1: STEP COOLING DIAGRAM



# Product Data Sheet - PDS

OE CROMO E 225 V

REV. 0 del 17/01/03

Pag 8 / 9



# Annex 1 :

## Step Cooling Diagram

