

## Classification

**EN ISO 14174**

SA FB 1 55 DC

## Characteristics and typical fields of application

Marathon 543 is an agglomerated fluoride-basic special welding flux with high basicity for multipass welding of creep resistant 9 % Cr-steels like P91/T91, P911 and NF 616 (grade P92/T92). The metallurgical behaviour concerning Si and Mn is neutral. The flux produces well contoured and smooth welding beads with good slag release as well as appropriate weld metal ductility and impact behaviour after tempering. Marathon 543 is a hydrogen-controlled welding flux with hydrogen contents of maximum 5 ml / 100 g weld deposit.

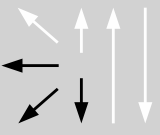
## Base materials

high creep resistant 9%Cr-steels like grade P91/T91, 1.4903 - X10CrMoVNb9-1, grade P92/T92, NF616 and 1.4905 - X11CrMoWVNb9-1-1

## Composition of sub-arc welding flux (wt. %)

	SiO <sub>2</sub> +Al <sub>2</sub> O <sub>3</sub>	CaF <sub>2</sub> +CaO+MgO
wt-%	35	60

## Operating data

	<b>Polarity</b>	<b>Basicity acc. to Boniszewski:</b>	2.9 weight %
	DC ( + ) / DC ( - )	<b>Bulk density:</b>	1.0 kg / dm <sup>3</sup>
		<b>Grain size acc. to EN ISO 14174:</b>	3 – 20 (0.3- – 2.0 mm)
		<b>Flux consumption:</b>	1.0 kg flux per kg wire
		<b>Redrying:</b>	300 – 350 °C, 2 hrs min.

## Typical Composition of all-weld Metal with different Wires

SAW wires	C	Si	Mn	Cr	Ni	Mo	V	Nb	N	W
Thermanit MTS 3	0.1	0.22	0.60	8.70	0.45	0.93	0.18	0.05	0,04	-
Thermanit MTS 616	0.09	0.22	0.70	8.90	0.45	0.43	0.18	0.05	0,04	1.7
Thermanit MTS 911	0.09	0.22	0.60	8.90	0.45	0.96	0.18	0.05	0.04	1.05

	wire classification	classification for wire flux/combination	
	EN ISO 24598	EN ISO	AWS A5.23
Thermanit MTS 3	S S CrMo91	S S CrMo91 FB	F9PZ-EB91-B91
Thermanit MTS 616	S S ZCrMoWVNb9 0.5 1.5	S S ZCrMoWVNb9 0.5 1.5 FB	-
Thermanit 911	S S ZCrMoWVNb9 1 1		

## Approvals

TÜV:

Thermanit MTS 3 – 06527

Thermanit MTS 616 – 09391

Thermanit MTS 911 - 09228