



Tenova PYROMET
Tenova Pyromet (Pty) Ltd
10 Sherborne Road
Parktown, Johannesburg
PO Box 61582, Marshalltown
2107 South Africa
Phone +27 11 480 2000
Fax +27 11 482 1942
pyromet@za.tenovagroup.com

Tenova METAL MAKING
Tenova S.p.A.
Via Monte Rosa 93
20149 Milan
Italy
Phone +39 02 4384 7945
Fax +39 02 4384 7695
metalmaking@it.tenovagroup.com

Tenova CORE
Tenova Core
Cherrington Corporate Center
100 Corporate Center Drive
Coraopolis, PA 15108-3185
USA
Phone +1 412 262 2240
Fax +1 412 262 2055
info@tenovacore.com

Tenova TIMEC
Timec Co. Ltd.
Huashan Road 666
Tianjin Tanggu Marine High-Tech Development Area
300459 Tianjin
China
Phone +86 22 59830100
Fax +86 22 59830101
timec@tenovagroup.com

Tenova TITB
Techint Industrial Technologies (Beijing) Co. Ltd.
1700 Air China Plaza
36 Xiaoyun Lu
100027 Beijing
China
Phone +86 10-8447 5656
Fax +86 10-8447 5858
titb@tenovagroup.com

Tenova
Techint Representative Office for C.I.S.
Voznesenskij per., dom 20, Stroenie 3
125009 Moscow
Russia
Phone +7 495 726 59 43/44
Fax +7 495 937 77 12
temos@ru.tenovagroup.com



PAUL WURTH



Chrome Red Technology

Highly efficient and environmentally friendly
process for the production of ferrochrome

www.tenovagroup.com

TECHINT GROUP

TENOVA is a world-wide supplier of advanced technologies, product and services for the metal and mining industries.

Tenova is a worldwide supplier of advanced technologies, products and services for the metal and mining industries providing innovative integrated solutions. Combined process automation and metallurgical know-how enhance the value delivered to the customers. Tenova is committed further to develop its technology in the areas that mostly impact the future of the industries it serves: quality of the products delivered by the customers, energy saving and environmental safeguard.



Tenova Pyromet is a leading company in the design and supply of high-capacity electric submerged-arc smelting furnaces and complete smelting plants for the production of ferroalloys, base metals, slag cleaning and alloy refining.

Tenova Pyromet has a long and successful history in the ferroalloy industry and also designs and supplies equipment for material handling and pre-treatment, alloy conversion and refining, granulation of metal, matte and slag, furnace off-gas fume collection and treatment, treatment of hazardous dusts and wastes.

The company has been certified to ISO 9001:2008 for "The Design and Supply of Smelting Technology and Equipment".

Tenova Pyromet and Paul Wurth have jointly developed the ChromeRed technology. ChromeRed is a highly efficient and environmentally friendly process for the production of Ferrochrome (FeCr).

The key to the ChromeRed process is that it most effectively uses the chemical energy contained in the furnace off gas to pre-reduce the ore before it is fed to the furnace. The chromite ore is pelletised and heated in a Rotary Hearth Furnace, wherein the various stages of the pre-reduction process can be effectively controlled to ensure an optimum product.

The ChromeRed pre-reduced material is not hot charged directly into the furnace, which ensures that the process and metallurgical balance is finely controlled.

ChromeRed pelletises fine Chromites with cheap reductants, pre-reduces the Chromite pellets in the well proven Paul Wurth Rotary Hearth Furnace (RHF) and smelts the pre-reduced product in Tenova Pyromet's world leading Submerged Arc Furnace (SAF).

The advantages of this technology are considerable:

- Reduces power consumption by plus-minus 1MWh/t FeCr product
- Reduces operating costs by 10 US c/lb FeCr
- Reduces Silicon (Si) content in FeCr by 2%
- Reduces metallurgical coke requirement from 600kg/t to 200kg/t
- Chrome recovery in the order of 92 to 94%
- Use of mostly anthracite as reductant
- Uses the CO gas generated by the SAF to fire the RHF
- Retrofittable to all current FeCr smelters
- No additional electrical power required for a +40% production increase
- Ability to utilize significant quantities of low grade concentrates/fines

