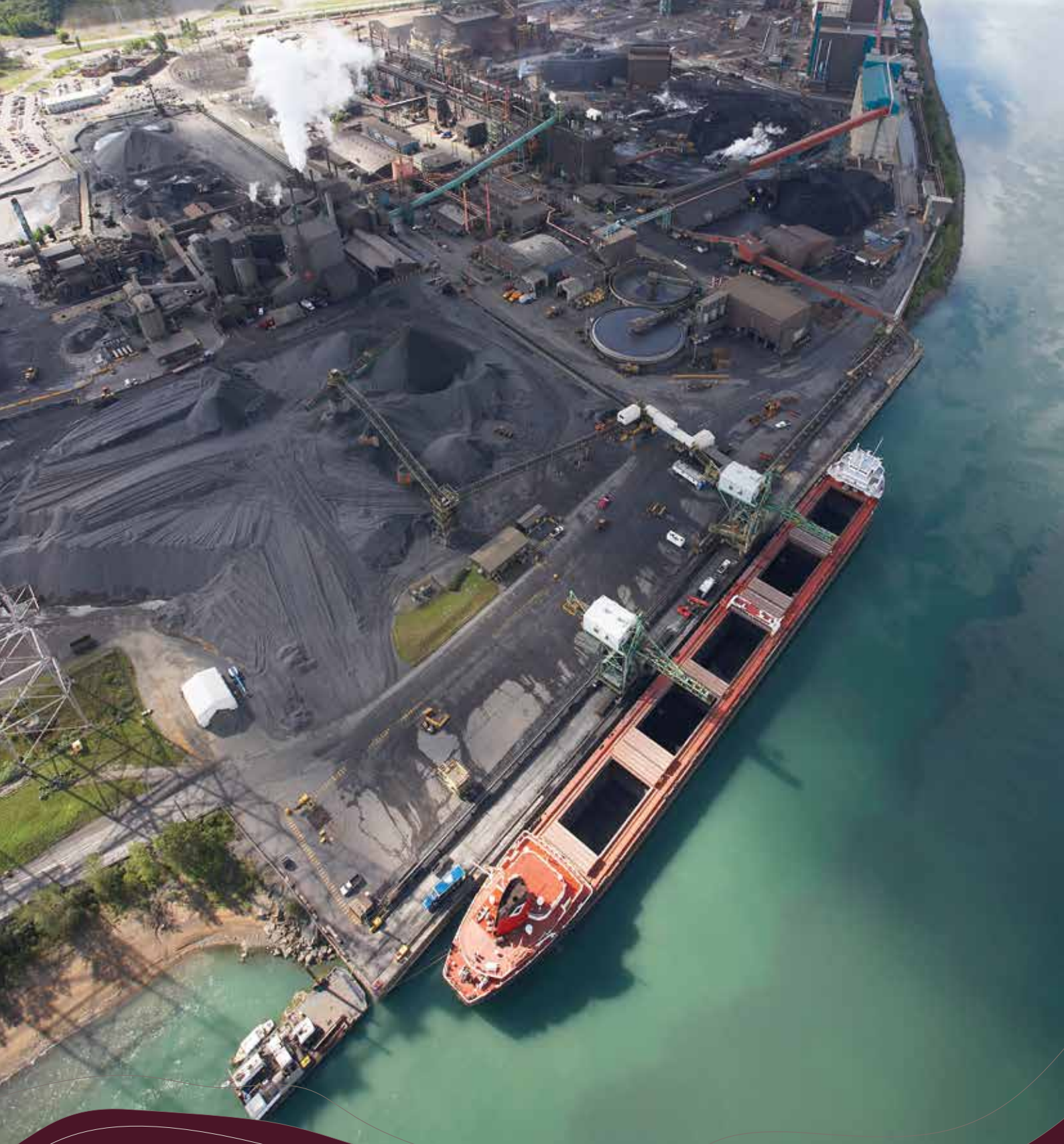




RioTinto

Ilmenite Ore for Specialty Applications

Unlocking New Possibilities in Infrastructure, Energy, and Industry



Ilmenite: A Critical Mineral for Infrastructure and Clean Energy

In a world where materials must endure extremes such as intense heat, severe cold, marine exposure, and demanding industrial conditions, ilmenite stands out as a dependable resource. This naturally occurring titanium-iron oxide mineral is prized for its density, thermal stability, and radiation attenuation, making it essential for applications that demand reliability and long-term performance in challenging settings.

Main Features & Benefits

High-Temperature Reaction Behavior: Ilmenite contributes to the formation of titanium-based carbides and carbonitrides during high-temperature reactions. These compounds precipitate on furnace linings, helping protect the hearth and extend operational life.

High Mass Attenuation Coefficient: Ilmenite's natural composition—rich in iron (Fe) and titanium (Ti)—gives it a relatively high mass attenuation coefficient for gamma radiation. This makes it effective in reducing radiation intensity when used in bulk materials like heavy concrete, supporting its use in nuclear shielding and radiation-safe infrastructure.

Thermal and Chemical Stability: Ilmenite remains stable under high temperatures and in environments such as seawater and many industrial conditions. It is durable in marine settings and processes where long-term stability is essential.

High Density: Ilmenite's specific gravity (~4.5–5.0) provides the mass needed to stabilize submarine cables, underwater pipelines, and offshore structures. Its weight helps anchor infrastructure securely in dynamic marine environments.

Mine at Lac Tio

The largest rock ilmenite deposit in the world sits 43 kilometres from Havre-Saint-Pierre. There, Rio Tinto Iron and Titanium Quebec owns and operates the open-pit mine since 1950, producing high-quality ilmenite for decades.

The mine is notable not only for its size but also for the quality of the ore extracted there. The mined ilmenite is crushed on site and transported by railcar to our private port terminal, then sent by ore carrier to the Critical Minerals and Metallurgical Complex in Sorel-Tracy.

Logistics

All of these Titanium grades Technical Solutions can be shipped in bulk via Panamax or Handysize vessels from RTIT's private ports of Havre-St.-Pierre or Sorel-Tracy.

Ilmenite based solutions

	Beneficiated Ore (B-ore)	SorelFlux®	Run of Mine (RoM)
Type	• Finer	• Screened	• Coarser
TiO ₂ content	• 33.8%	• 31.4%	• 32.2%
Fe content	• 37.9%	• 35.6%	• 36.8%
Total Fe + TiO ₂	• 71.7%	• 67.0%	• 69.0%
Size	• Less than 6.35mm	• 10 to 40mm	• 0 to 75mm

Ilmenite Ore for Specialty Applications

Blast furnace

Application:

- Hearth protection, lining life extension
- Lining remediation for severe hearth erosion

Technical fit:

- Formation of titanium-based carbides and carbonitrides during high-temperature reactions



Subsea and Marine Infrastructure

Application:

- Ballast for Submarine Cables and Commercial Vessels
- Pipeline Stabilization and Weight Coating
- Structural Support for Offshore Oil & Gas Platforms

Technical Fit:

- High specific gravity and chemically stable



Nuclear Infrastructure

Application:

- Radiation shielding concrete
- Radiation-Resistant Grouting and Fill Materials
- Shielded Containers for Radioactive Waste Storage
- Biological Shielding in Reactor Systems

Technical Fit:

- High density and Radiation Attenuation Efficiency



Pipeline Coatings

Application:

- Filler in Epoxy-Based Coatings
- High-Performance Wraps and Shields

Technical Fit:

- High density and Chemical stability



Please contact Rio Tinto Iron & Titanium for further information.

Ilmenite Ore for Specialty Applications worldwide locations

- Production facility
- Commercial office



RTIT Quebec Operations

1655, route Marie-Victorin
Sorel-Tracy, QC
J3R 4R4
Canada
Tel +1 450 746 5050

Eschborn, Germany

Alfred-Herrhausen-Allee 3-5
65760 Eschborn
Germany
Tel +49 6196 96 000

Pune, India

Gat No. 246 ,Barge Wasti,
Chimbali Road, Chimbali
Tal : Khed, Dist : Pune 410501
India
Tel + 91 7567106767

Chicago, USA

200 E Randolph Street, Suite 7100
Chicago, IL 60601
USA
Tel +1 773 270 6500

RTIT – Japan

Kojimachi Diamond Building 8F
4-1-1 Kojimachi, Chiyoda-ku
Tokyo 102-0083
Japan
Tel +81 3 3222 2444
Fax +81 3 3222 2412

Suzhou, China

418 Nanshi Street
Suzhou Industrial Park
Suzhou 215021
P.R. China
Tel +86 512 6283 6100

Singapore

12 Marina Boulevard
#20-01 Marina Bay Financial Centre, Tower 3
Singapore 018982
T: +65 66 79 9000

RioTinto

salesinfo@riotinto.com

www.riotinto.com