Issues with transport of tantalum ores to processing facilities

By Roland Chavasse, T.I.C. Director
TRANSSC-35, Vienna, Austria, 13 December 2017
What is the T.I.C.? (1)

The global trade association for the elements tantalum (Ta) and niobium (Nb).
What is the T.I.C.? (2)

We have 95 member organisations from 25 countries
What is the T.I.C.? (3)

Our members span the entire supply chain from miners to smelters to end-users, and then recyclers.

Mining in Australia

Smelting in Malaysia

tantalum capacitors

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What is tantalum?

• Tantalum is a rare transition metal
• Highly corrosion-resistant
• Member of the refractory metals group
• Highly chemically inert
What is tantalum used for? (1)

65% is consumed in high-performance electronics*:

* Roskill, 2016. Photos: Pipelinepub.com, Samsung
What is tantalum used for? (2)

20% is consumed in the superalloys used in*:

- Aircraft engines
- Chemical plants
- Power production

* Roskill, 2016. Photos: Airbus, Becht.com, Shutterstock
What is tantalum used for? (3)

Other critical applications include:

- Medical implants
- Cutting tools
- Optics (LaTaO₃)

* Roskill, 2016. Photos: KEMET, TIC, Custom Glass & Optics
Where does tantalum come from?

- Tantalum is almost always found in nature together with the chemically similar niobium
- Often mined as columbite-tantalite ("coltan")
- It often contains traces of U and Th
Where is tantalum mined?

In 2015 45% was mined from Rwanda, DRC and Burundi*.

* Roskill, 2016
Where is tantalum processed?

The main tantalite processing plants are located in:

• China
• Germany
• Kazakhstan
• Malaysia
• Russia
• Thailand
• USA
The shipping issue (1)
The shipping issue (2)

Tantalite has **fragile routes** from east Africa, both as Class 7 and as general cargo:

- No carrier links east-coast Africa to USA direct
- Very few carriers link east-coast Africa to Europe

To China, Thailand and Malaysia
The shipping issue (3)

What can be done to avoid a de facto shipping ban?
T.I.C.’s strategy to tackle this issue:

- Identify problematic transport nodes / routes
- Engage key NORM stakeholders (e.g. at TFWG)
- Inform the IAEA and IMO of our progress
- Educate industry on regulation and best practice
Conclusion

Fragile shipping routes and denial of shipment:

• Damage the economies of central African countries

• Cut off regions of the world from essential raw materials

• Add to the cost of raw materials and goods for everyone, including the end-consumers.
Thank you!

The next T.I.C. annual conference will be held in Kigali, Rwanda, from October 14th to 17th 2018.

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