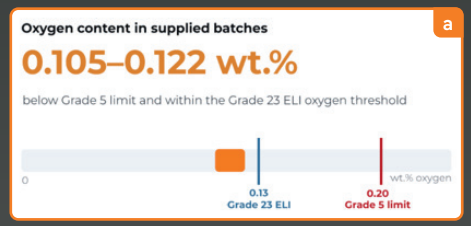
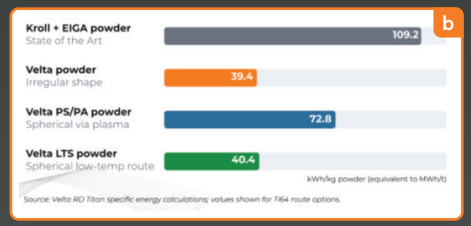


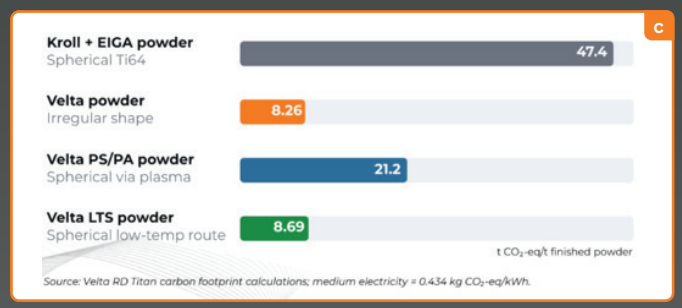



## PROPERTIES

- Purity compatible with demanding applications (a)
- Energy consumption strongly reduced (b)
- Carbon footprint strongly reduced (c)






## EXPECTED IMPACTS OF REPTIS

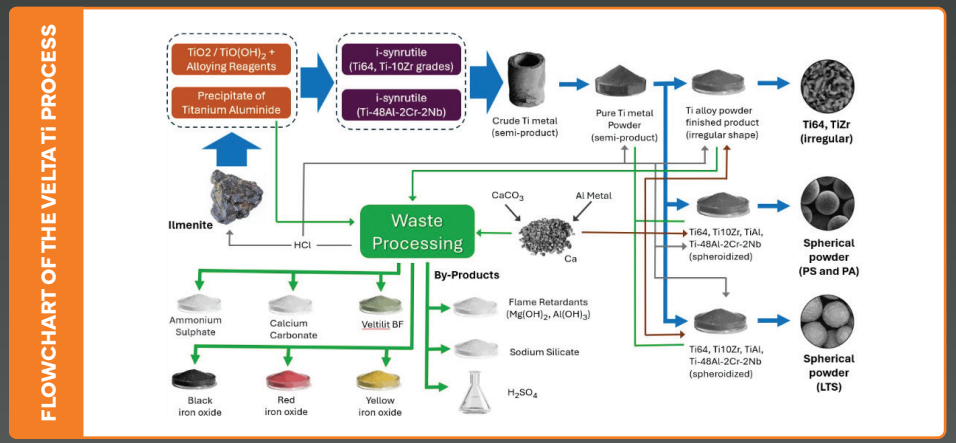
- Holistic solution to Titanium powder production and supply by Ilmenite extraction and zero-waste Velta Ti process
- Demonstration of the project results through versatile real life uses cases to raise awareness for market acceptance of the new powders
- Set of specific data for LCA reporting of Titanium, especially on powder form
- Product Environmental Footprint (PEF) study on four case studies to evaluate the environmental performance of the developed technologies

## FOLLOW REPTIS!

www.reptis.eu | www.linkedin.com/company/reptis | x.com/REPTiS_Project www.youtube.com/@REPTiS_HE
zenodo.org/communities/reptis

REPTiS is an EU funded Horizon Europe project to bring in a sustainable and energy efficient solution for responsible extraction and processing of Titanium, a Critical Raw Material for the EU, from strategic partner country Ukraine. The objective is to supply EU industrial value chains and strategic sectors with a new stream of titanium alloy powders with a net zero-waste approach.

REPTiS is improving over the patented Velta Ti Process that exploits Ukrainian ilmenite ore, shortening and reducing the environmental footprint of the usual process for Ti alloy powders.




*Flowchart of the Velta Ti Process; leading to irregular Ti-alloy powder without melting/high temperature steps*







*The REPTiS consortium comprises 11 partners from 7 EU/EEA countries and 2 partners from strategic partner country Ukraine, covering the entire value chain of Titanium.*

Co-funded by the European Union

Co-Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

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## EXPECTED IMPROVEMENTS

The REPTiS solution eliminates the disadvantages of current processes to achieve advantages in the following areas:

- Significant reduction in the cost of finished products
- Avoidance of solid and liquid waste generation
- Significant reduction of the carbon footprint
- Improved particle size control of finished powders
- Improved homogeneity of alloying additives distribution in alloys

## RESULTS OBTAINED IN THE FIRST HALF OF THE PROJECT

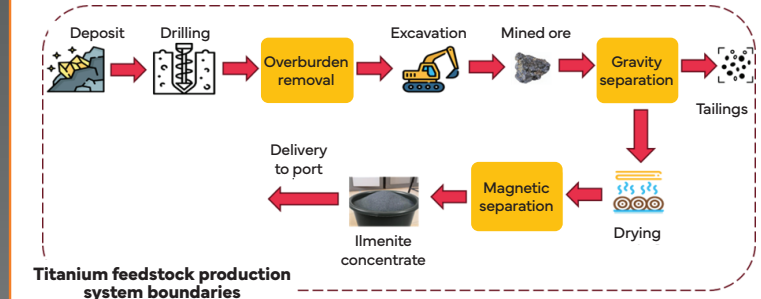
- REPTiS Ti minerals (ilmenite) extraction and processing (Birzulivske, central Ukraine)
- Greener energy sourcing for all processes




*a) Positive assessment of viability of weathering crust exploitation | b) Improved logistics of material flow in the mine field | c) Improved gravity and magnetic separation*




*d) Valorisation of other by-products, e.g. kaolin*







## ACHIEVEMENTS

- Mineral samples transferred
- Production of the first batches of alloy powders
- Powder characterisation
- Test samples produced









## NEXT STEP: DEMONSTRATORS

- Four different applications in aerospace, medical and consumer goods
- Two technologies: Metal Injection Moulding (MIM) and Laser Powder Bed Fusion (L-PBF)

