

World's 1st Performance-Tuned Fe₂O₃ (Iron Oxide) produced at Commercial Scale claimed by Engineered Data LLC on 7/1/2023

Engineered Data LLC's Performance-Tuned Fe₂O₃ enables "Customized-To-Application" Grain Sizes + Surface Areas, signaling the end of "1 size fits all" Iron Oxide

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Engineered Data LLC's [Advanced](#)

[Materials Group](#) (Synthetic-Metals.com) claims to being the 1st commercial entity in the World to:

[1] Performance-Tune Fe₂O₃ at a commercial scale on 7/1/2023 (\geq kg/batch, independently verified by Particle Technology Lab [PTL] Reports issued 7/2019, 5/2023 & 6/2023, all reports viewable at Synthetic-Metals.com);

(a) All synthesized from the same Industrial-Grade Precursor

(b) All synthesized using slight variations to the same Synthesis Process

(c) All resulting in distinctly different Surface Area + Grain-Sizes Groups

[2] Performance Tune Nanothermite using Performance-Tuned Fe₂O₃ on 7/17/2023; and

[3] Publish video documentation of Nanothermite Performance-Tuning on 7/27/2023 on [YouTube](#).

This Press Release marks the beginning of the end of "1 size fits all" iron oxide for manufacturing and research.

Two market groups are perfectly positioned to capitalize on Performance-Tuned Fe₂O₃ in the near future: Researchers & Early Technology Adopters in the Battery/Superconductor + Ordnance/Propulsion Sectors. The two wildcard markets are BioMed + Dyes.

PERFORMANCE TUNING refers to recalibrating a single synthesis process to generate different grain size + surface area particle combinations. The ability to tailor a particle to the product or application where it is being used is among the most finite + precise forms of engineering, enabling near-future product performance + research advancements that are low in implementation cost + dramatic in value.



Two examples of applications where grain size + surface area matter are water pollution remediation + pyrotechnics.

Larger grain sizes could be produced for applications where larger Fe₂O₃ grain sizes are preferable (like water pollution applications, where larger grains take longer to dissolve hence extending product life). Smaller grain sizes could likewise be produced for applications where smaller grain sizes are preferable (like nanothermite, where smaller grain sizes translate into faster ignition + subsequent catalytic reactivity). In the EDLLC's YouTube video, Nanothermite demonstrated that smaller particles did ignite faster. It also demonstrated that particles with higher surface areas burned longer. 5X-7X longer, when compared to the same grain size Fe₂O₃ recommended by Amazon.

HIGH PERFORMANCE Fe₂O₃, specifically ultra-high surface area Fe₂O₃, almost universally comes in the form of nanoscale powder comprised of ultra-small, solid & spherical particles. These ultra-high surface areas deliver ultra-fast catalytic reactions, enhanced energetic yields + longer product-lifespans, depending on the application factors. They also pose a health threat, as nanoscale particles can permeate human tissue with unknown biological consequences.

EDLLC's ultra-high surface area Fe₂O₃ is unique because it is comprised of micron scale particles (+1,000X larger than nanoparticles, too large to permeate human tissue) with a nanoporous particle architectures that delivers surface areas even greater than commercial nanoparticles (independent lab verification again provided by PTL).

Additional information & a limited supply of samples are available at Synthetic-Metals.com.

Tim Rolf
Engineered Data LLC
+1 202-716-9400

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