

NEW

ULTRAFINE GRINDING

New solutions for the production of ultrafine industrial mineral powders < 1µm

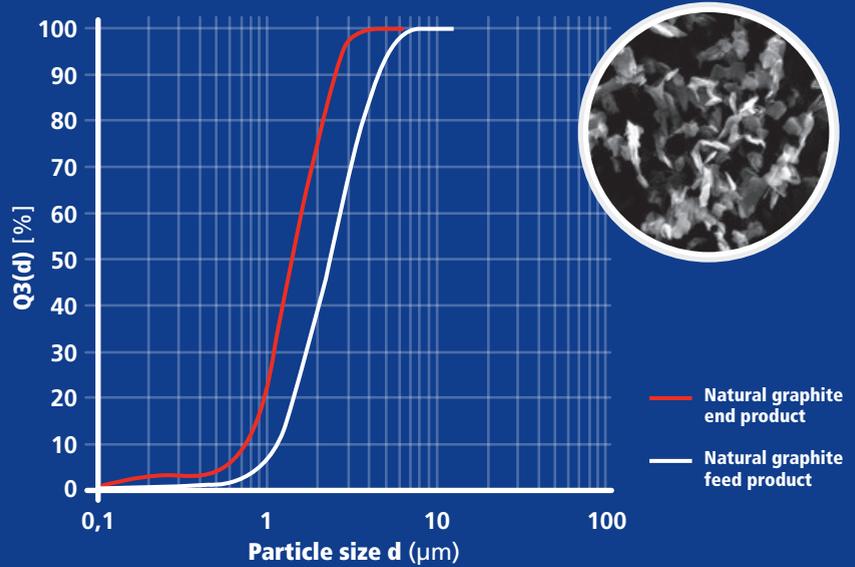


HOSOKAWA ALPINE

Process technologies for tomorrow.

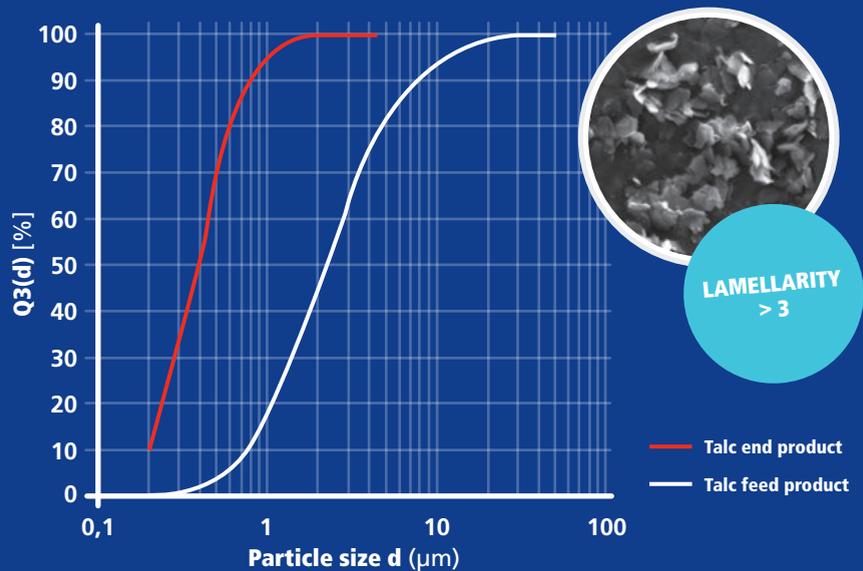
NATURAL GRAPHITE

The new and upgraded TDG fluidised bed opposed jet mill makes it possible to **produce graphite in as yet unparalleled finenesses in one continuous, dry grinding process.** At the same time, the laminar structure is retained.



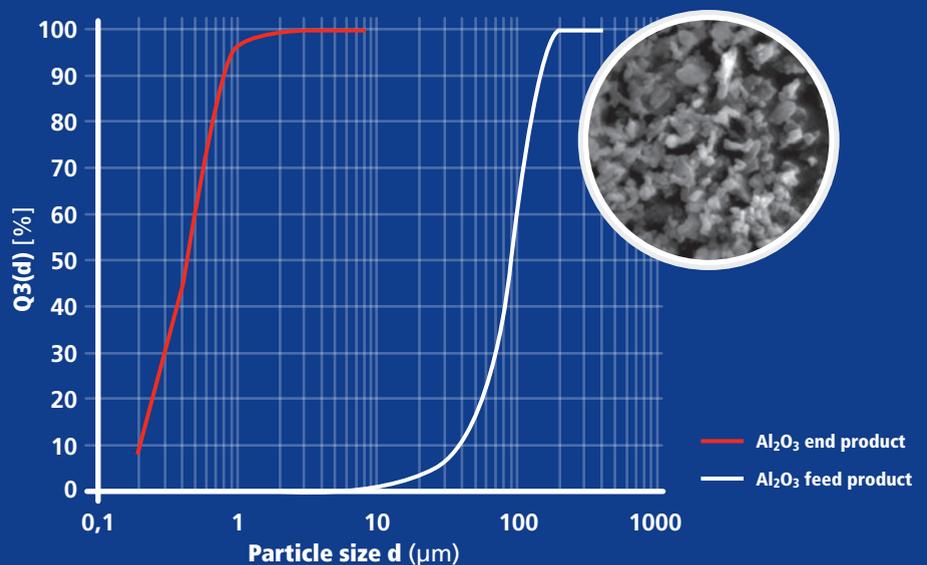
TALC

Ultrafine talc with a with a high lamellarity > 3 provides the filler with extensive properties: the application of extremely fine talc brings a variety of advantages, e.g. when used in plastics.



ALUMINIUM OXIDE

Ultrafine ceramic powder opens up undreamt-of possibilities. The Pulvis classifier mill ensures not only an extremely **low-contamination grinding** of aluminium oxide, but also a **clean disintegration of the aggregates into the individual primary particles.** This makes it possible to achieve undreamt-of finenesses of $d_{97} = 1 \mu\text{m}$.





2 × ULTRAFINE GRINDING DOUBLES THE BENEFITS

Optimal results brought about by maximum efficiency

When it comes to the production of highly fine industrial mineral powders, Hosokawa Alpine takes on new challenges. With our process-technological solution, we offer you a tangible competitive edge, namely the dry processing of hard, abrasive and particle-shape-focused minerals down to $< 1\mu\text{m}$. Up to now, it has only been possible to achieve these kinds of fineness values with a wet process that is considerably more cost-intensive and complex.

The dry ultrafine grinding process designed by Hosokawa Alpine scores with precise advantages:

- › Steep particle size distribution
- › Compact design
- › Simple process
- › Low in contamination

»» THE FACTS SPEAK FOR THEMSELVES

MANY DIFFERENT FACTORS ARE DECISIVE FOR A GRINDING FINENESS OF $< 1\mu\text{m}$:

- › Ideal process configuration and matching of the process parameters to ultrafine grinding
- › Optimisation of the throughput rates and grinding energy down to the $d_{97} = 1\mu\text{m}$ range
- › Consistent implementation of extensive development and practical experience
- › The use of modern process control technology including trend spotting, control and correction

HIGH PERFORMANCE IN THE ULTRAFINE RANGE

Alpine Pulvis: the energy-optimised grinding system

The Pulvis is a vertical, dry agitated media mill with an integrated dynamic classifier. Dependent on the application, the Pulvis can be equipped with different classifiers in order to perfectly meet your requirements. The Pulvis is employed for fineness values of $d_{97} = 1 \mu\text{m}$. It is above all abrasive materials such as ceramic materials that the Pulvis processes without any problem at all thanks to the consistent use of wear-protection elements. It is only through constant further development of the system configuration and the grinding process that it has been possible to achieve higher throughput rates and to considerably improve the economic appeal of the Pulvis.

EVERY FEATURE A HIGHLIGHT

- › Application of different classifier types
- › Up to 80 % energy savings in comparison with jet milling
- › Ultrafine range of $d_{97} < 1 \mu\text{m}$ possible
- › Low-wear grinding
- › Compact installation
- › No circulation of grinding beads
- › Low maintenance costs



Aluminium oxide

Glass

Ceramic

Aluminium trihydroxide (ATH)



TECHNICAL SPECIFICATIONS

<i>Pulvis product line</i>	<i>150 lab scale</i>	<i>450</i>	<i>600</i>	<i>800</i>	<i>1000</i>
Scale up factor	—	0.5 – 0.6	1	2	3
Mill motor (kW)	2.2	11	18.5	37	55
Classifier motor (kW)	1.4	5.5	7.5	18.5	18.5
Air flow rate (m ³ /h)	40 – 60	360 – 540	600 – 900	1200 – 1800	1800 – 2700

MAXIMUM FINENESS VALUES OPEN UP NEW STANDARDS

Alpine TDG: flexible, compact, ultrafine

The TDG is a fluidised bed opposed jet mill with integrated high-performance classifier. Hosokawa Alpine sets new standards with this system: achievable fineness values with the dry grinding of powders down to $d_{97} = 1\mu\text{m}$. At the same time, the particle shape remains intact – even with the finest products. This is evidenced by the high lamellarity values, e. g. with talc.

THE FACTS

- › Ultrafine products down to $d_{97} = 1\mu\text{m}$
- › Lamellarity with talc > 3
- › Energy-efficient high-performance classifier with the NG geometry designed in-house
- › Simple and flexible grinding process
- › Modest space requirement brought about by compact system design
- › Hot gas operation up to $200\text{ }^{\circ}\text{C}$ possible



Talc

Graphite

Baryte

Mica



TECHNICAL SPECIFICATIONS

Product line TDG	200/400	315/630	500/800
Scale-up factor	1	2.5	6.25
Classifier motor (kW)	22	55	132
Volume flow rate (Nm ³ /h)	1200	3000	8000

» Big in product fineness, small in energy consumption. Put your specific application to the test in ALPINE's own application testing centre.



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Just call us - we will be happy to help.



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