



Interview by Peter Edwards, Global Gypsum Magazine

## In discussion: A mill for all gypsum sources



**Above:** Patrick Heyd is Gebr. Pfeiffer's Executive Director for Sales and Project Engineering. He has 25 years of experience at the firm. Over the years he has held sales and project roles and was previously Area Manager for Asia.

Patrick Heyd and Viktor Zerr from Gebr. Pfeiffer explain the flexibility of the company's MPS GC mill range, which can grind and calcine 100% natural, 100% synthetic or 100% recycled gypsum, or any combination of the three...

### Global Gypsum (GG): Can you outline Gebr. Pfeiffer's background in the gypsum sector?

**Patrick Heyd (PH):** Gebr. Pfeiffer has a long history of manufacturing vertical roller mills (VRMs) for the gypsum sector, supplying its first mills to the sector in 1963. It is one of the technical leaders in this field, introducing its gypsum grinding and calcining mills in the late 1990s. There are 49 MPS VRMs references for gypsum grinding and drying, plus 30 MPS VRMs for gypsum calcining. They are very flexible, which offers our clients enormous scope to refine their operations. In addition, our mills can cover a wide range with regard to the desired throughput rate. Gypsum grinding / calcining mills with throughput capacities from 10-100t/hr are successfully in operation. Mills for much higher throughputs are also available.

Overall, wallboard producers, regardless of location, want equipment that can digest any kind of gypsum. The nature of our equipment means we are well placed to answer such requests.

Another plus is our compact plant design, which of course offers advantages for greenfield projects but especially for brownfield projects where the available space is limited.

### GG: What features allow Gebr. Pfeiffer's equipment to handle different types of gypsum?

**Viktor Zerr (VZ):** Gebr. Pfeiffer's gypsum mills are inherently flexible, although they require adjustments when handling different types of gypsum. The mill motor is equipped with a frequency converter so that we can run at different table speeds. FGD gypsum requires lower table speed than natural gypsum, for example. FGD gypsum also requires a lower grinding force, typically consuming less than half the grinding energy compared to natural gypsum.

For recycled gypsum, where there may be contamination from concrete, bricks, metals and even electrical cables, we return to higher grinding forces. Some of the contamination like metal and wood pieces however need to be removed before feeding this material to the mill. If we know that the mill will be routinely handling recycled gypsum, we can provide enhanced wear parts for protection. Recycled gypsum feeds also consume more energy than natural gypsum. We are also able to turn down the capacity on the mills, to operate at partial capacity, should that be required. The calcining mills can also be adjusted to grind and dry dihydrate for the production of stucco in a client's pre-existing calcining equipment.

### GG: Can the mill switch between different feeds during operation or does it need to be stopped?

**VZ:** The feed can be gradually adjusted during operation. Perhaps the client is using 100% natural and wants to switch to 100% FGD. This is possible because we can adjust the grinding force and table speed continuously as the feed is changed over. What



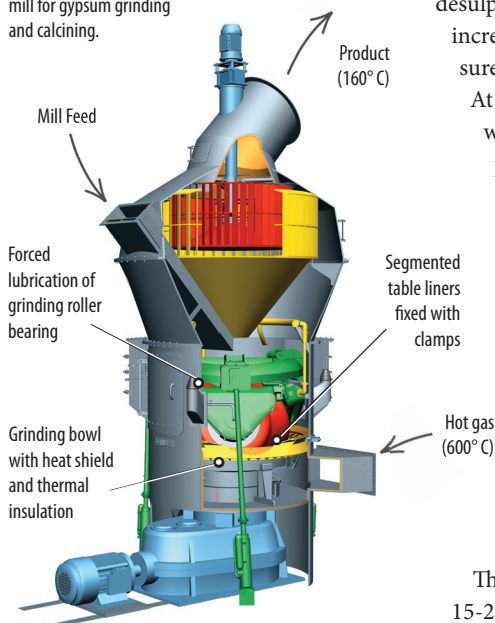
**Above:** Viktor Zerr has been Senior Sales Manager Global Gypsum Business at Gebr. Pfeiffer since 2014, having worked for the company in gypsum projects and sales roles since 2006.

### GG: How are your gypsum sector clients' demands changing at the moment?

**PH:** We are increasingly asked to provide mills that can switch between different gypsum sources, which are changing fast. In developed markets, such as North America and Europe, flue gas desulphurisation (FGD) gypsum is increasingly scarce due to the closure of coal-fired power stations. At the moment, the trend is towards natural gypsum, but the proportion of recycled gypsum will rise in the future.

The opposite is the case in regions where gypsum is growing in importance, for example in India. Coal will be important for power generation in India for many years to come. However, growing environmental awareness means that FGD scrubbers are now becoming widespread. This will be the trend for the next 15-20 years at least.

**Below:** Schematic of a Gebr. Pfeiffer MPS GC mill for gypsum grinding and calcining.





**Above:** MPS 225 B grinding-drying mill for natural and recycled gypsum.

Capacity = 75t/hr  
Fineness = <10% R 0.150mm  
Power = 800kW  
Surface moisture (feed) = 8%  
Surface moisture (prod) <0.1%

**Above right:** One of the world's two largest gypsum mills. Both grind natural gypsum, one in Asia, the other in North America.

Capacity = 94.5t/hr  
Fineness = <1% R 0.200mm  
Power = 600kW  
Crystal water (feed) = 20.0%  
Crystal water (prod) = 5.5%



our clients also like is that the dynamic separator can be adjusted quickly to ensure consistent quality of the product even if changes should occur.

**PH:** Our clients care about producing consistent, high quality product. How they produce high quality gypsum, i.e. the feed material, the mill parameters, are somewhat less important. What our mill enables them to do is have a large number of levers to ensure they arrive at the desired homogeneous quality.

**GG: Are any of your clients using natural, FGD and recycled gypsum at the same time?**

**VZ:** We are currently working on projects in which clients want to use 100% natural, 100% FGD, blends of the two, blends of recycled gypsum alongside natural or FGD and blends of all three.

**PH:** The missing 'combination' at the moment is 100% recycled gypsum. The quality of recycled gypsum is still not quite high enough to ensure a reliable quality output for wallboard production but it is increasing in quality... step-by-step.

**GG: Will producers be forced to 'chop and change' their gypsum sources more often in future?**

**PH:** Absolutely, 100%.

**GG: Do you think gypsum trade, including of FGD gypsum, will rise in future to balance out some of the mismatches between supply and demand?**

**PH:** Natural gypsum exports from Oman, Spain and still Thailand to some extent, are already significant.

FGD gypsum by contrast, due to its high moisture content, is less economical to transport. This means that it needs to be treated before it can be transported over longer distances. We have some projects where we have supplied equipment specifically to dry FGD gypsum, so this could be a nice opportunity.

**GG: What will a European wall-board plant feed its mill in 2030?**

**VZ:** The trend is towards more recycled gypsum content, with some portion of natural gypsum. I would say that recycled content will be as high as 70-75%. FGD gypsum will be a thing of the past in Europe, with almost none avail-

able. In Germany the last coal fired power plant will be taken off the grid by 2038. The recycled material stems from the modernisation of residential and commercial buildings. The EU circular economy act demands that retailers, wholesalers and producers take back all wallboards after use.

**PH:** With higher proportions of waste comes a higher proportion of impurities. These have to be diverted away from the mill as much as possible. However, our mills are also very forgiving when it comes to such materials.

**GG: It seems the mills are ready for whatever the future throws at them. Where does Gebr. Pfeiffer shift its attention to now?**

**PH:** We are looking to provide the entire process for drying, grinding and calcining. That means from feed material reception, storage, transport to the mill and the mill itself. We have taken on this scope in a couple of projects and wish to expand this capability.

There will also be a trend towards better control of the particle size distribution that we can help wallboard producers to develop. Our highly dynamic classifier, which we use in other fields, is well suited to this task. When a wallboard producer can control its particle size distribution, it is able to reduce its water ratio, which is an ongoing battle in wall-board plants. There are plenty of opportunities for process refinement in the coming decades!

**GG: Thank you for your time gentlemen.**

**PH/VZ:** You are very welcome.

