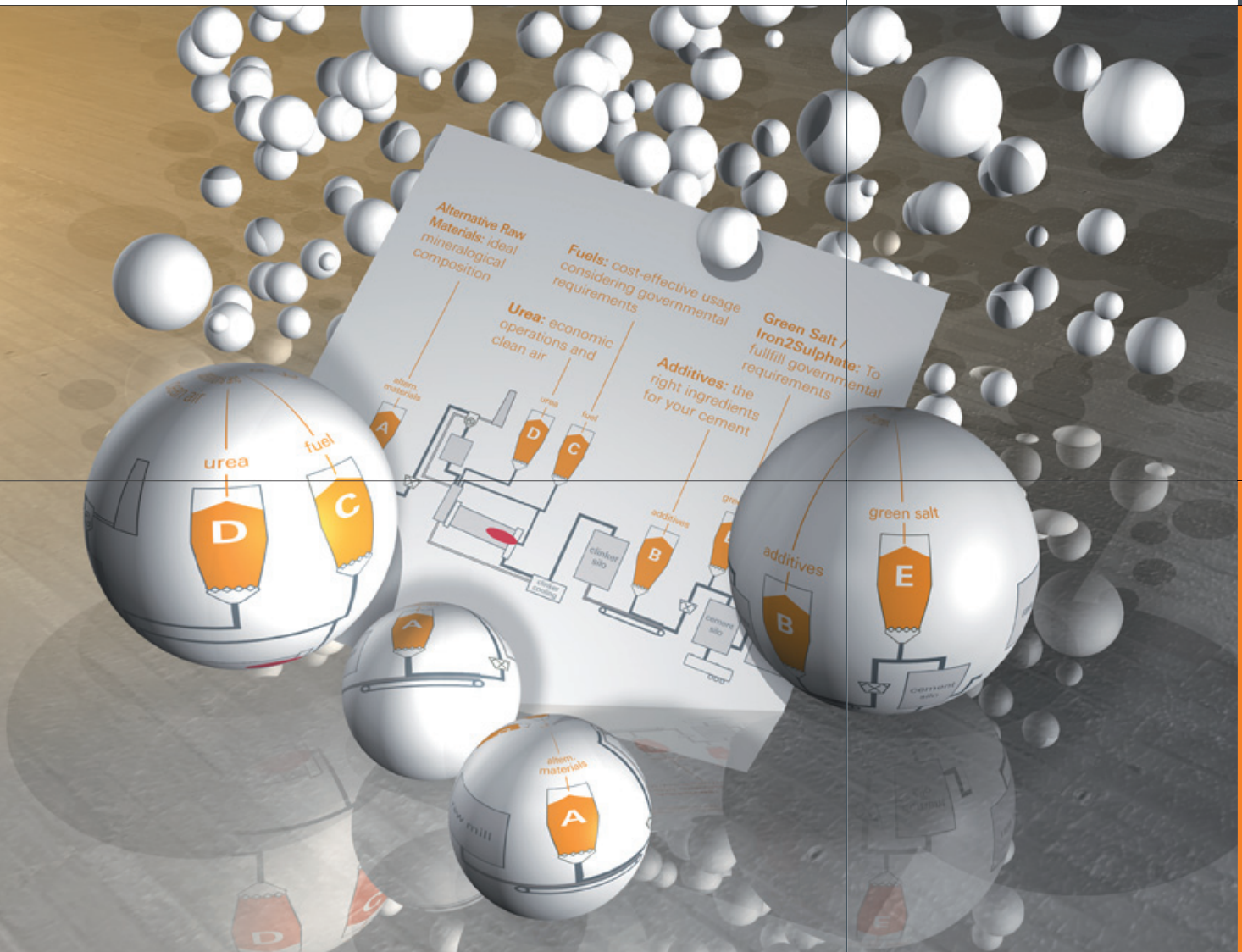
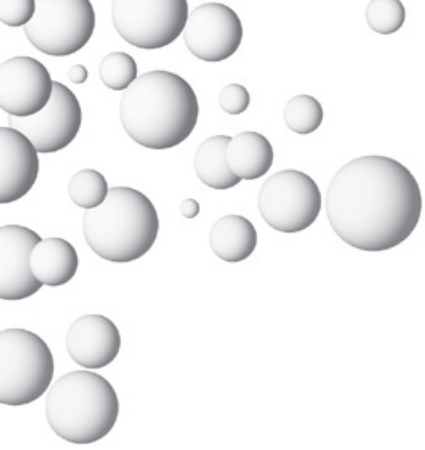


CONCERNING CEMENT:  
WE ARE 100% EFFICIENT.

**CEMENT SPECIAL**

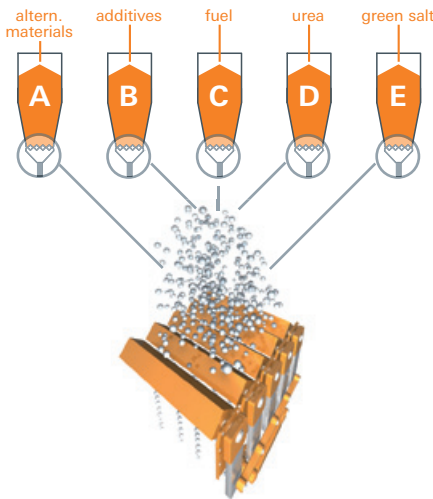
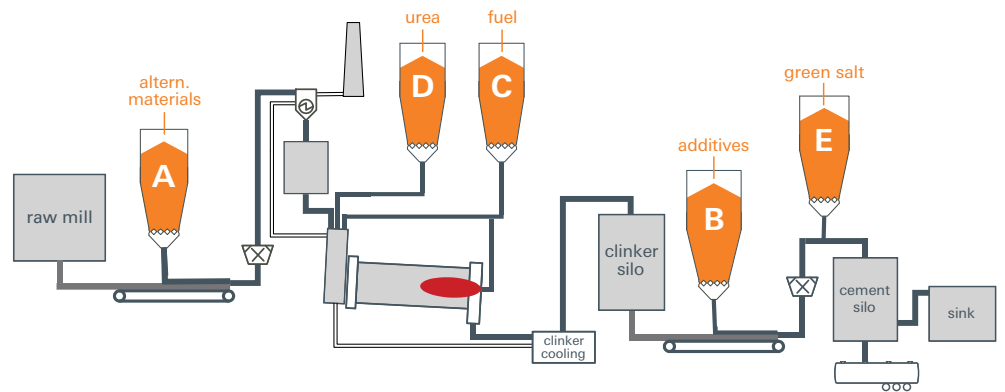
FOR MORE OPERATION SECURITY  
AND LOWER COSTS.





# SCIENCE BUILDS BETTER PLANTS. FORTUNATELY THIS IS ALSO TRUE FOR CEMENT INDUSTRY PLANTS.

Cement plant overview.  
In the orange highlighted areas we  
are able to provide perfect solutions.



## CEMENT? WE CONTROL ALL BULK SOLIDS!

Precise takeover, storage, mixing, dosing and the discharge of bulk solids. Our 35 year long experience ranges across all industries. We offer the full service spectrum, which includes consulting, engineering, process automation, assembly and after-sales support (training). Because of our in-house laboratory, we are able to offer the necessary know-how to meet the requirements of your cement plant perfectly.

## HOW DO WE OPTIMISE YOUR CEMENT PLANT?

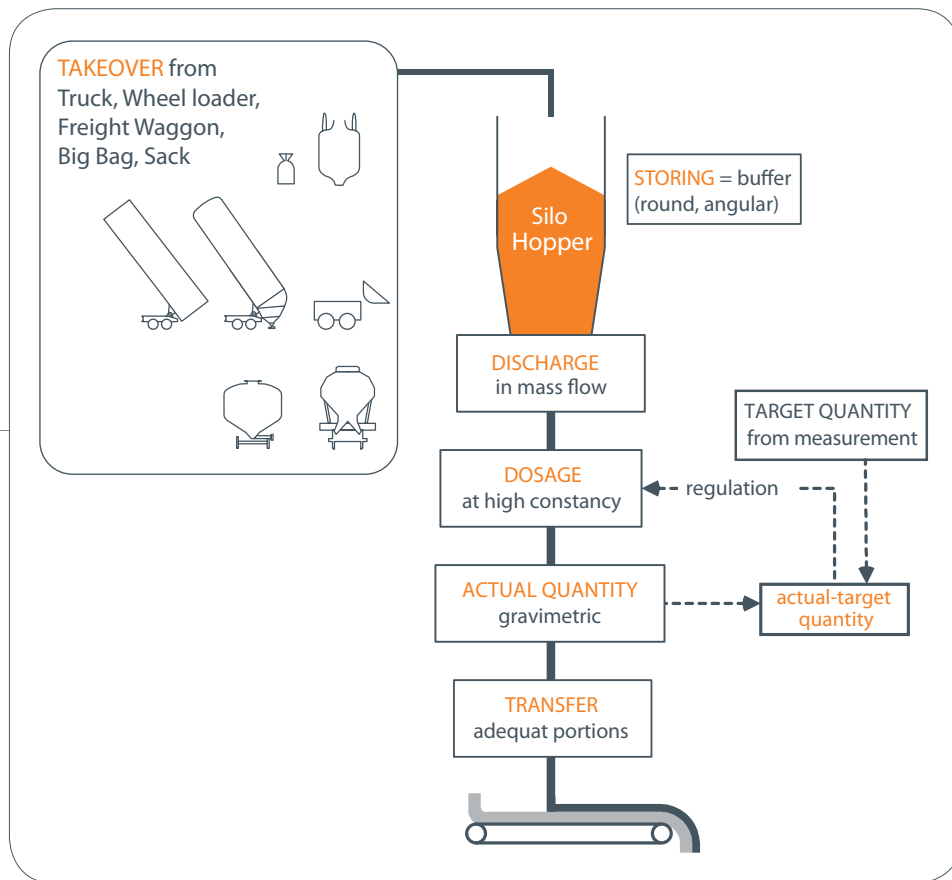
With knowledge! Knowledge has the power to build the best plants in every industry. It is well known that the many partial procedures involving bulk solids within a cement plant must harmonise perfectly. We understand these procedures and we also know how to create the best parameters while the cement making process.

Your plant gets the best results!

## GENERAL REQUIREMENTS INSIDE THE CEMENT PLANT.

After the raw cement leaves the blending bed, the ideal mineralogical composition is reached through the gravimetric weighing and dosing system. In the calcinator (and cooler), **urea** reduces the NO<sub>x</sub> emissions to a minimum - one of our specialities. Through the careful application of **alternative fuels**, costs are decreased and the usage of fossil fuels is not needed. After the cement passed through the clinker-silo, missing **additives** are added until the perfect cement mixture is reached. Before the process is finished, the material is refined with **green salt** (also known as **humid iron2sulphate**). This bulk solid is very complex but not a problem for our discharge system.

Especially important when feeding the bulk solids to the cement production process are the individual stages that are involved: takeover, storage, mixing, dosage and discharge.



### TAKEOVER:

The silo geometry should be adapted perfectly to the individual types of delivery vehicles and containers. There are **many possibilities** for delivery.

### STORE:

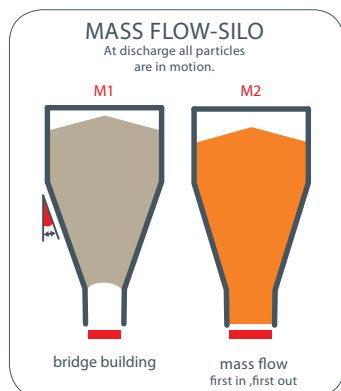
An adequate buffer should always be considered for delivery clearance and for troubleshooting.

### DISCHARGE:

An absolute priority is a **cautious discharge** especially with complex bulk solids (with a band width of up to approx. 100 mm). Otherwise, some materials can cause bridging, clumping or other complications.

### DOSAGE:

The correct dosage can be added after the flow-rate weight has been accurately calculated. The actual quantity must be compared to the target quantity beforehand.

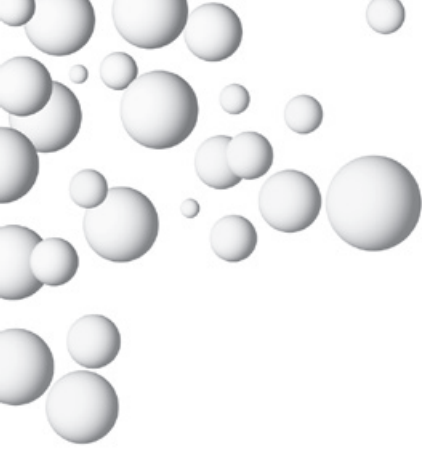


## MASS FLOW

The filling of the hopper always causes a segregation of the material. This leads to a change in the grain distribution. The mass flow homogenises the bulk solids and regulates the mineralogical components. The whole volume of the silo should remain in constant and equal motion and the bearing load should also remain constant. The marginal bearing load and weight fluctuations significantly improve the consistency of the dosage.

### TRANSFER:

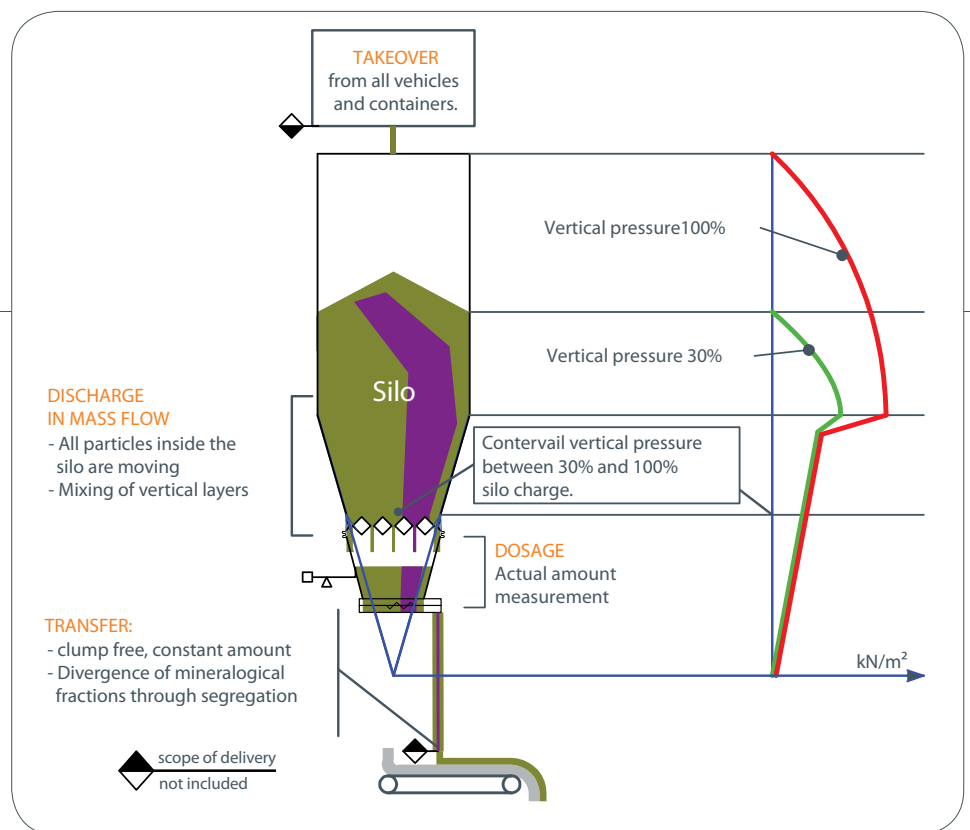
Fluctuations in the administration of quantities should be kept to a minimum, so that the receiving machine does not overload.



# +++++ ADVANTAGES FOR YOUR SUCCESS.

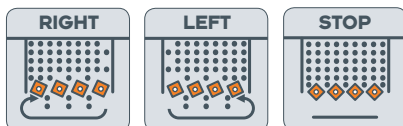
## ALL ADVANTAGES IN ONE SIGHT.

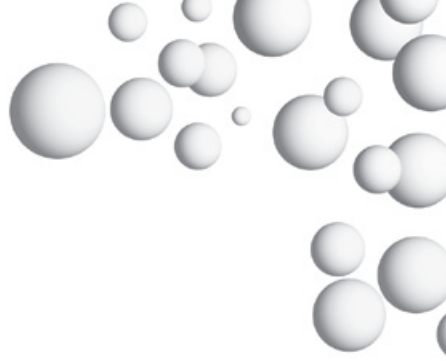
Working with a system from Geroldinger provides a multitude of benefits. In addition to various technological utilities you increase the operation safety and lower operating costs. Your investment generates safe returns. You will find a great number of advantages on the following pages.



## + TECHNOLOGY

The **OSZILLOMAT** is our technological core. Our simple and ingenious discharge-system includes the functions „mixing, dosing, discharging“ of complex cement additives, alternative raw materials and fuels. The sophisticated system consists of a silo geometry and an oscillating beam discharger, which is easily adaptable to every particular bulk solid. The controllable beam floor triggers mass flow, which is important for the quality assurance of most complex bulk solids. The **OSZILLOMAT** system is a safe all in one solution by which bulk solids can carefully be loosened, dosed and gently discharged. You always keep control, because the material flow can be monitored and controlled automatically from a central operation and diagnosis center. The system is also connected to a gravimetric weighing and dosing system. This allows only minimal fluctuations of your mineralogical fractions. As soon as the beam floor is closed not even the finest powder can escape.





## + OPERATING SECURITY

Security is our utmost concern! Our OSZILLOMAT guarantees this. The discharge system is imbedded into a solidly welded machine frame, in which the massive oscillating beams are supported by high performance swing bearings. Because of the robust construction, the machine practically can not break. And if it does break? With the OSZILLOMAT system a breakdown is no catastrophe! If this occurs, nevertheless the safe discharge of bulk solids is possible at all times. The availability of your material is assured throughout the process.

## + OPERATING COSTS

Downtime costs money! All relevant parts of the OSZILLOMAT are on the outside of the machine, which means that maintenance is possible even during the operating procedure. You save money by saving time. If a disturbance should occur, it can be corrected externally via internet or our telephone hotline. Our state-of-the-art OSZILLOMAT system uses little energy. **Your investment is in the best of hands!**

## + ALLROUND THINKING

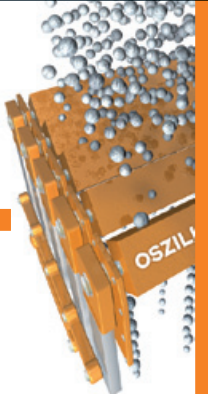
We love thinking in many ways!

The best arguments are more than 35 years of experience and over 1600 explored bulk solids in numerous industries. Because of this know-how we can handle almost any bulk solid. We are even familiar with all related basic conditions that ensure an optimal handling.

The OSZILLOMAT is extremely flexible. A plant designed by Geroldinger is adaptable for a majority of unexpected challenges like unexplored bulk solids, capabilities of additional quantities and exact dosages.

For example, a system for animal meal can also be used for wood flour. A part of our overall and broad experience is the handling of urea and humid iron2sulphate. The transfer of these substances happens precisely and safely.

CO	Cohesive bulk solids
EC	Elastic cohesive bulk solids
UF	Ultra-fine bulk solids
PA	Past-like bulk solids
A	Anisotropic bulk solids
HY	Hygroscopic bulk solids
SE	Segregating bulk solids



THE ONLY RESULT IS:  
BENEFITS!

## + ECOLOGICAL BENEFIT

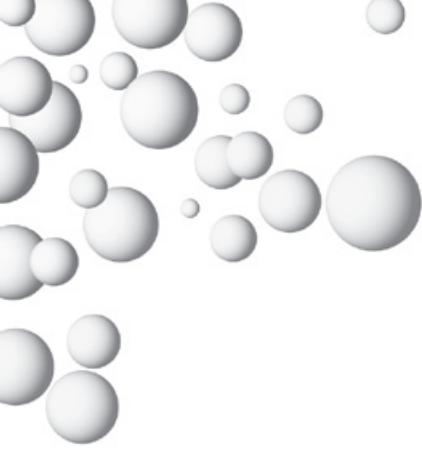
Industry and green technology belong together. We think economic activities should work supportively and the cognition of alternative potentials increases success.

When possible, we also offer solutions for waste products from other industrial processes. All fuel solutions are economically and ecologically adjusted to your needs. By applying this industrial recycling, we save resources and reduce costs at the same time.

## WHAT DO YOU GET?

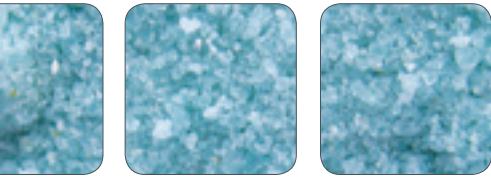
You benefit from efficient, resource friendly handling by having a better image in public.





# SOME RELEVANT BULK SOLIDS FOR THE CEMENT PRODUCTION.

## GREEN SALT / IRON2SULPHATE



Green salt

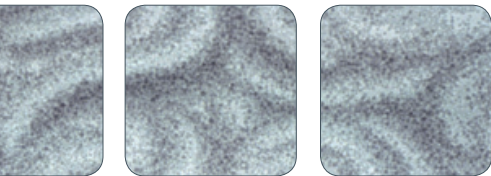
The **OSZILLOMAT** is the perfect solution for green salt, a complex bulk solid (also known as humid iron2sulphate).

### THE COST ASPECT:

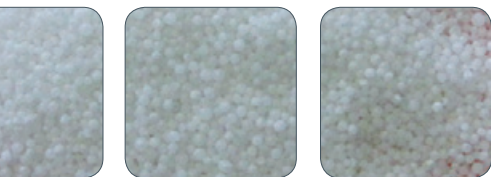
If you buy moist iron2sulphate it is cheaper than dry green salt but the first material is more difficult to handle. But the complex characteristics are no problem for our **OSZILLOMAT** system, which is economically the better solution in the long run.

### THE HEALTH ASPECT:

The green salt that is applied to processing is extremely fine. This happens due to the terms set by the **EU rule of action 2003/53/EG from 18th june 2003**, which only allows chromate-depleted cement to be used in order to control work-related skin diseases in the building industry. The **OSZILLOMAT** does not only support health issues but also saves raw material consumption and money.



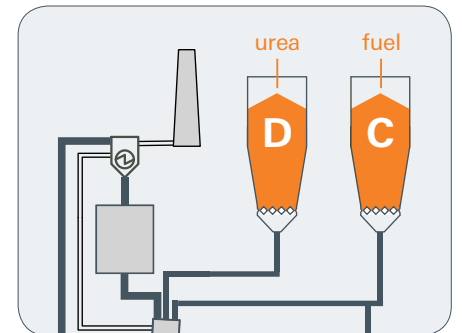
Urea



Prilled Urea

## UREA

With our discharge system the effective reduction of NOx emissions happens without any problems. Through temperature influence and humidity the solid urea can clump. In the worst case your silo can totally clog up. But don't worry, with our system this is not possible. Before dosage the material is split up gently. Of course the use of liquid urea is possible. Unfortunately this substance is more expensive. This is why, on the long run the application of solid urea is much cheaper.



Regarding urea resources we say: „Environmental protection is important. Because urea uses a lot of energy. This special kind of bulk solid has to be added to the process in exact dosage“.

The unique **OSZILLOMAT** fulfills this thanks to fine dosage and safe handling of the material. Our **references** will convince you.

**CO**  
cohesive

**EC**  
elastic cohesive

**UF**  
ultra fine

**PA**  
paste-like

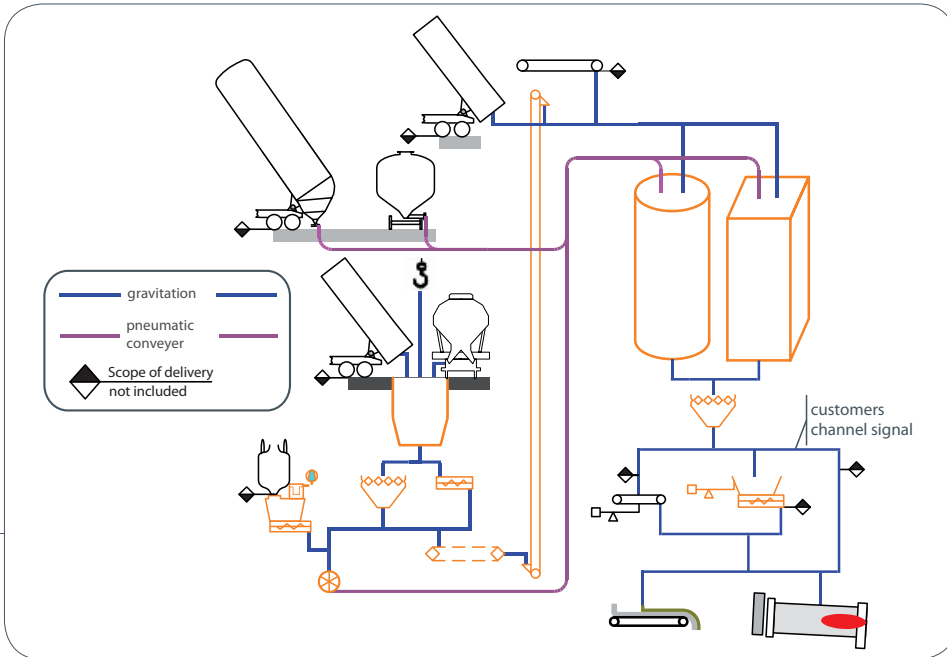
**A**  
anisotropic

**HY**  
hygroscopic

We differentiate between the following bulk solids categories which are categorized according to the fluidity of the material.

**SE**  
segregating

## INDIVIDUAL SOLUTIONS



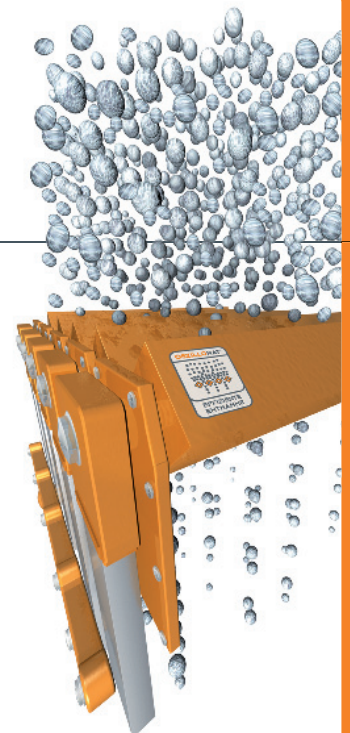
Once delivered, whether by dump truck, silo truck, freight wagon, silo wagon or big bag, everything runs smoothly. We have the right solution for every possibility. All requirements for dosing are based on calculations of the bulk solid characteristics that have been previously determined. Subsequently, we undertake analysis in our in-house laboratory and with our online measuring tool. In this way, the desired consistency of your cement can be reached.

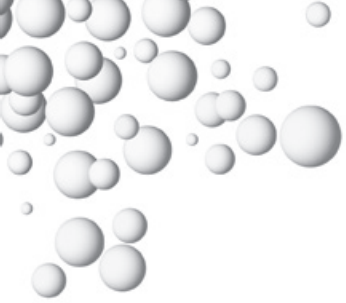
During the working process, we maintain a highly transparent data interchange, which reduces fluctuations between additive characteristics.

< Please view the chart for available variations.

		Altern. raw material, Addit.			Alternative Fuels			
		Light Flow Mat.	Cohesive +Adhesive	Cohesive	Grained, Powdery Cohesive	Foil Scrap	Urea	Iron2sulphate (Green Salt)
g = Geroldinger a = other producers Distributor empty=not recommended								
<b>TAKEOVER FROM</b>								
Dump truck		g	g	g	g	g		g
Silo truck		g			g		g	
Waggon-Talbot		g			g		g	
Silo-Waggon		g	g		g		g	
Big-Bag							g	
<b>CONVEYING:</b>		to/hour						
Pneumatic hor+vert	1 - 50	g			g	g	g	
Screw hor	5 - 150	g	g	g	g	g	g	g
Chain convey hor+vert	5 - 150	g	g	g	g	g	g	g
Belt-Elevator vert	5 - 150	g	g	g	g	g	g	
<b>STORAGE:</b>		m <sup>3</sup>						
Angular metal	30 - 600	g	g	g	g	g	g	g
Round metal	10 - 240	g	g	g	g	g	g	
Round concrete		a	a	a				
<b>DISCHARGE:</b>		m <sup>3</sup> /hour						
OSZILLOMAT till 700°C	1 - 300	g	g	g	g	g	g	g
<b>DOSAGE:</b>								
OSZILLOMAT from Silo		g	g	g	g			
Screw		g	g	g	g	g	g	g
Chamber wheel lock		a		a				
<b>ACTUAL - WEIGHT/ AMOUNT</b>								
Weighted metal silo		g	g	g	g	g	g	g
Differential-dosage scale		g	g	g	g	g	g	g
Conveyer belt scale		a	a		a	a		
Scale-roll in conv. belt		a	a	a	a			

Geroldinger cement references   
  Geroldinger references from other industries.





# REFERENCES



TRANSFER OF OIL EMULSIVE SOIL OR PLASTIC WASTE FROM A TRUCK  
Hopper with **OSZILLOMAT** discharge.  
Place: Egypt



ACQUISITION OF THE EXACT TRANSFER AMOUNT VIA DIFFERENTIAL DOSAGE SCALE.  
The transfer occurs from the **OSZILLOMAT** with a great output. Materials: Synthetic gypsum with big stones. Place: Serbia

**Consultation**  
**Research + Engineering**  
**Production + Assembly**  
**Turnkey Systems**  
from planning to start-up

**Storage**  
**Mass flow silos:**  
Round + octagonal MULTIGON

**Conveyor Systems**  
Pneumatic conveyor systems,  
screw conveyors, chain conveyors

**Discharging, mixing**  
**Dosing + weighing**  
Systems for mass flows:  
OSZILLOMAT, screw conveyors

**Process Automation**  
Controlling, recording, visualizing

# FURTHER INFORMATION MATERIAL



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