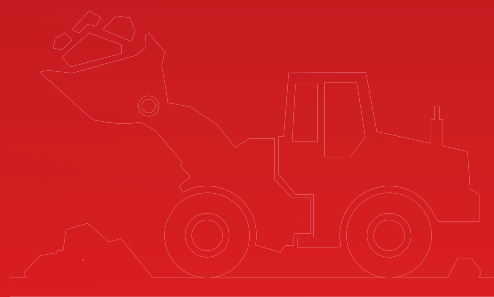


**CASEA**

WORKING FOR THE FUTURE

## Calcium sulfates for the industry



**> CASEA**

CASEA GmbH specialises in extracting and processing gypsum and anhydrite and offers a wide range of products for industrial use

[casea-gips.de](http://casea-gips.de)



## The whole range of calcium sulfates from just one company

If you are looking for expertise in the area of bespoke, high quality calcium sulfate products, then CASEA is the firm for you. This newly founded company has been responsible for all of the REMONDIS Group's gypsum activities since February 2013 and unites the experience of Südharzer Gipswerke (SHG) with the know-how of the premium RADDIBIN brand – for top quality and a first class service.

With approx. 200 employees and an annual turnover of 60m euros, CASEA operates from four different locations in Germany and markets up to 1m tonnes of gypsum-based products every year

### One of strengths: our independence

CASEA operates its own facilities and supplies its own raw materials enabling it to offer its customers a reliable supply of calcium-sulfate-based products both at home and abroad. Thanks to its wide range of production technology and its state-of-the-art processes, it is also able to deliver specialty products that have been adapted to individual customer needs.

### Bespoke solutions for each and every area of use

Being a strongly customer-focused business, CASEA creates products that meet the individual requirements of the customers. Such customers include firms operating in the building supplies industry and building chemicals industry, the ceramics industry, the medical technology sector and even in the food and animal feed industries.

# CASEA supplies the perfect solution no matter what the application

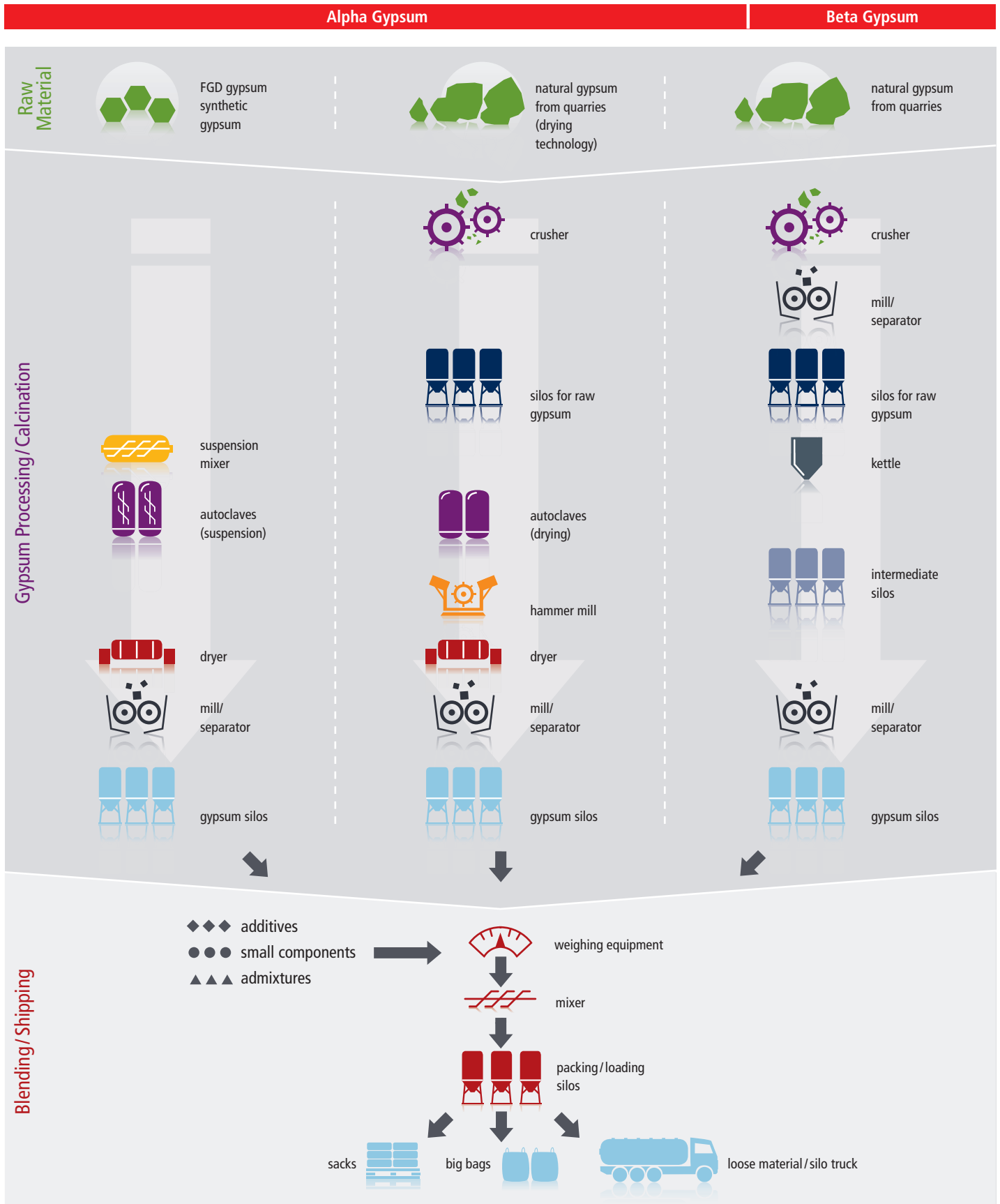
CASEA is your specialist for all types of gypsum and plaster products and has a wide-ranging catalogue of articles based on calcium sulfate source materials – from raw materials all the way through to ready-to-use products. Both the individual properties of our products and their different mixtures have proven to be a success for many years now – no matter what the industrial application – and can, on request, be adapted to meet a particular need.

We offer the following product groups to our industrial customers:



CASEA is also able to deliver its products in a range of different quantities and packaging. You can receive our products in bulk as a loose material, in sacks, in big bags or in smaller sized bags

# The best processes create the best results





CASEA supplies premium products and monitors all the different processes that its high quality raw materials undergo – from the quarry to the finished article

## Our raw materials. Creating the best conditions for your project

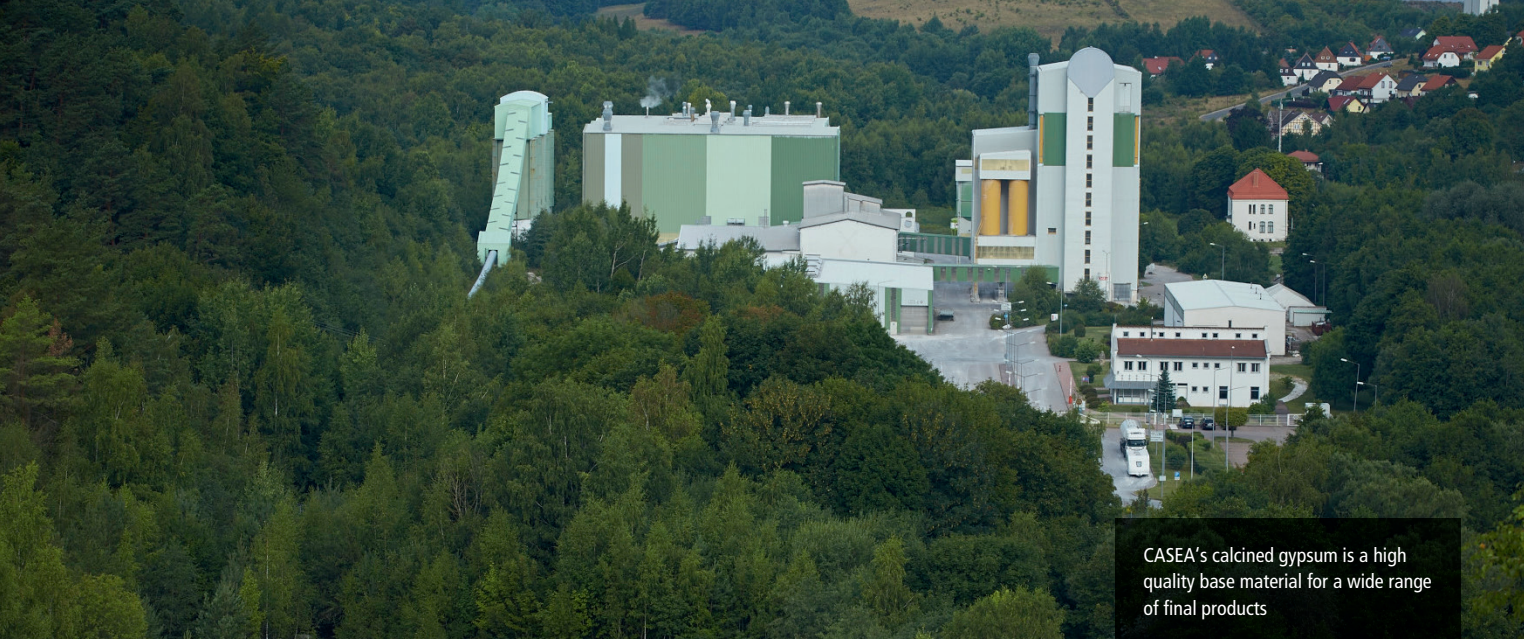
By mining its source materials from its own quarries close to its processing facilities, CASEA can guarantee its customers a flexible and just-in-time supply of natural gypsum and natural anhydrite. In addition, the company has long-term agreements with experienced partners to ensure a steady supply of high purity FGD gypsum and synthetic anhydrite. Thanks to our know-how in the area of processing technology, you can receive our raw materials whenever you need them and in whatever quality you require.

### CASEA customers benefit

- from a flexible, just-in-time supply of raw materials
- from a guaranteed supply due to the stocks of raw materials available
- from the best possible quality as only high purity gypsum is used
- from having raw materials supplied in whatever form is needed (crushed, milled, different-sized particles)

### > The CASEA product range: raw materials

Raw Material	Products	Description	Areas of Use
Natural Anhydrite	Anhydrite rock	Raw anhydrite stone, crushed and screened	A base material for the gypsum/plaster industry, quick hardener for the cement industry
	Anhydritsand	A finely processed sand of natural anhydrite without additives or stimulators	For fabrication building materials, fertilizers and is used in chemical industry
	Micro A	A very finely milled natural anhydrite without additives or activators and with a low water of crystallization content	A binding or filling agent in the building supplies industry and building chemicals industry
	Micro B	Separated and sifted material from anhydrite treatment processes	A simple supplier of sulfate for the production of building materials and binding agents
	Micro C	A fine milled natural anhydrite without additives or activators and with a reduced water of crystallization content	An inert filling agent for gypsum-based building materials, e.g. gypsum-based filler
	Casufill A 5	Extremely finely milled and air separator natural anhydrite without additives or activators and with a low water of crystallization content	A solidification agent in the building chemicals industry, e.g. for tile adhesive or cement-based correction material
Thermal anhydrite	RADDIPUR	A calcined calcium sulfate, based on FGD gypsum, free of water of crystallization	For the production of calcium sulfate flowing screed
CS Dihydrat (gypsum)	Gypsum rock	Raw gypsum stone, crushed and screened	A base material for the gypsum/plaster industry, quick hardener for the cement industry
	CS Dihydrat	Finely milled natural Gypsum without additives	As an admixture in the production of building materials, as a base material for special applications



CASEA's calcined gypsum is a high quality base material for a wide range of final products

## Calcined gypsum for quality end products

The gypsum from our quarries and our synthetic raw materials are calcined using a variety of processes to form alpha and beta hemihydrate as well as thermal anhydrite. The choice of calcination process determines the technical properties of the individual material as well as its subsequent use. It is also possible to create mixtures of alpha and beta gypsum to fulfil our customers' individual requirements.

### CASEA customers benefit

- from a very great variety of product specifications
- from state-of-the-art plant technology that guarantees products of a consistently high quality
- from customer-specific plaster mixtures created from alpha and beta hemihydrates
- from top quality advice provided by our fieldwork team

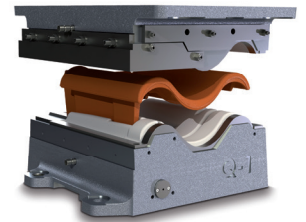
> The CASEA product range: semi-finished products/binding agents			
	Products	Description	Areas of Use
Alpha plasters	Alpha AGR 40 RADDICHEM 27 RADDICHEM SW Spezial 40/40 W/A	A calciumsulphate, calcined under pressure, with high mechanical strength	Building chemicals industry, gypsum-based filler, base plaster for the dental industry, products for floor technology
Beta plasters	Stuckgips	Plaster of Paris (particle size: up to ca. 1.0mm)	Building plaster for plaster products, gypsum blocks etc.
	Putzgips	Multiphase plaster (particle size; up to ca. 1.0mm)	An ideal base plaster for gypsum-based plasters
	Keramod 100 Keramod 125 Keramod A 20 K Standard/Primosupra	A casting plaster (particle size: sifted up to 0.2mm)	Production of gypsum-based fillers, special applications in the building chemicals sector, stucco work etc.
Thermal anhydrite	RADDIPUR	A calcined calcium sulfate, based on FGD gypsum, free of water of crystallization	For the production of calcium sulfate flowing screed



Our customers include a wide variety of companies operating in the ceramics sector

## Special plasters for the ceramics industry

CASEA supplies moulding plasters, in particular for producing porcelain, fine ceramics, sanitaryware and clay roof tiles; they can, however, be used for many other different applications. Both the setting time and the expansion properties of the mixtures can be adjusted to meet the specific requirements of our customers' moulds and facilities.



The high quality of CASEA's moulding plaster has made it an indispensable product in the ceramics industry

### CASEA customers benefit

- from the on-going optimisation and further development of our product range
- from our stringent quality management systems along the whole of the production chain
- from the ideal properties of our products thanks to our bespoke mixtures
- from our extensive know-how regarding special plasters and moulding plasters gathered over many years

### > The CASEA product range: moulding plasters

	Products	Description	Areas of Use
Alpha and beta hemihydrate in a variety of mixtures	Standard/ Primosupra 80–70	Casting plasters made from finely ground and sifted beta hemihydrate with an increasing proportion of alpha hemihydrate	Ceramic sanitaryware, porcelain and fine ceramics; perfect for casting moulds with excellent absorbency
	Extra/ Primosupra 68–60	Moulding plasters; a well balanced mixture of alpha and beta hemihydrates	Ceramic sanitaryware, porcelain and fine ceramics; perfect for casting and jiggering production processes
	Spezial/ Primodur 58–48	Plaster for jiggering; primarily made of alpha hemihydrate; very strong; the moulds are very accurate due to the plaster's reduced expansion properties	Porcelain and fine ceramics; perfect for roll casting and making moulds for mugs
	Modellhartgips/ Primodur 100	A very strong, low-expansion hard plaster for making models	Ceramic sanitaryware, porcelain and fine ceramics; perfect for producing true-to-scale models and appliances
	Durocast 10	Highly tempered moulding plaster	Ceramic sanitaryware, perfect for medium pressure casting
	Kerapress/ Primopress green/blend/blue	Plasters for pressure casting; very strong and break resistant; ideal for a wide range of mould designs; excellent processing properties	Porcelain and fine ceramics; particularly suitable for RAM presses
	Technodur/Alphapor	Moulding plasters specially developed for the roof tile industry, very durable; excellent permeability	For the production of roof tiles

## A suitable solution for every application. The CASEA product range: moulding plasters

Application	for casting moulds						for casting and jiggering moulds				
Type	Standard/Primosupra						Extra/Primosupra				
	80	78	76	74	72	70	68	66	64	62	60
Water to plaster ratio	0.80	0.78	0.76	0.74	0.72	0.70	0.68	0.66	0.64	0.62	0.60
Mixing rate	1.25	1.28	1.32	1.35	1.39	1.43	1.47	1.51	1.56	1.61	1.67
Initial setting time (min)	Generally 12–16 minutes. The initial setting time/expansion can be adjusted to ..... meet specific technical requirements.										
Linear expansion (%) normal	0.18 —————> 0.20						0.21 —————> 0.24				
adjusted	0.16 —————> 0.19						0.16 —————> 0.20				
Active capillary volume	50 —————> 45						44 —————> 39				
Ball indentation hardness	20 —————> 33						35 —————> 48				

Application	for working moulds to produce roof tiles					for casting and jiggering moulds					
Type	Technodur					Alphapor					
	30	25	HPJ	20	10	300	200	100	339	334	328
Water to plaster ratio	0,44	0,39	0,39	0,34	0,30	0,39	0,34	0,30	0,39	0,34	0,28
Mixing rate	2,27	2,56	2,56	2,94	3,33	2,56	2,94	3,33	2,56	2,94	3,57
Initial setting time (min)	Generally 8–12 minutes. The initial setting time/expansion can be adjusted to ..... meet specific technical requirements.										
Linear expansion (%) normal	0.12 —————> 0.18					0.12 —————> 0.18					
Ball indentation hardness	90	115	115	140	160	115	140	160	130	160	180





Perfect moulds, perfect results

for jiggering moulds						for hard moulds, master moulds & models	
Spezial/Primodur						Spezial/Primodur	Modellhartgips/Primodur 100
58	56	54	52	50	48	40	P 3/K
0.58	0.56	0.54	0.52	0.50	0.48	0.40	0.44
1.72	1.79	1.85	1.92	2.00	2.08	2.50	2.27
.....						9	9/14
0.25 —————> 0.32							
0.16 —————> 0.20						0.20	0.12
38 —————> 32							
52 —————> 80						110	90

for pressure moulds to produce household goods and gifts			for medium-pressure-casting moulds for the sanitoryware
Kerapress/Primopress			Durocast
grün	blend	blau	10
0,37	0,34	0,3	0,29
2,7	2,94	3,33	3,45
20-22	20-22	20-22	20
0.12 —————> 0.18			0.12
125	138	150	180



Thanks to CASEA, complex moulds are no problem at all



Our base plasters stand out thanks to their great strength – ensuring excellent results

## For the highest levels of precision. Base plasters for dental plaster

Only the very best quality of plaster can be used in dentistry. CASEA supplies a based material that meets the most stringent of demands. This brilliant white, extremely finely ground alpha hemihydrate is produced in autoclaves using either suspension or drying technology depending on our customers' needs. It is an excellent base material for producing high quality type III and IV dental plaster.

### CASEA customers benefit

- from top quality products thanks to our state-of-the-art grinding and mixing technology
- from very high degrees of whiteness to achieve the best results in tinted plasters
- from smooth surfaces, extremely stable edges and a highly accurate reproduction of details
- from bespoke mixtures – from low expansion to no expansion at all

### > The CASEA product range: base plasters for the dental industry

	Products	Description	Areas of Use
Alpha hemihydrate	Spezial/ Primodur 40 W	An alpha hemihydrate based on natural gypsum and produced in an autoclave using drying technology; finely ground; for great strength	Base plaster for type III dental plasters
	Spezial/ Primodur A	An alpha hemihydrate based on natural gypsum and produced in an autoclave using drying technology; high degree of whiteness	Base plaster for type III dental plasters
	RADDIDENT	An alpha hemihydrate produced in an autoclave using suspension technology; for a highly accurate reproduction of details and high edge strength	Base plaster for type IV dental plasters
	RADDIDENT SW	An alpha hemihydrate produced in an autoclave using suspension technology; for a highly accurate reproduction of details and high edge strength; high white content; intensive colour brilliance in tinted dental plasters	Base plaster for type IV dental plasters

CASEA's experts are happy to advise you on how and when to use our special products

## Calcium sulphate dihydrate for the food and feedstuffs industry

As our natural gypsum deposits in Ellrich show very high purities, Casea can provide both calcium sulphate dihydrate, as well as calcium sulphate anhydrite for the food and feedstuffs industry.

The calcium sulphate dihydrate and the calcium sulphate anhydrite, both fulfil the QA requirements of the positive list of the individual feedstuffs, and are also used as pH neutral feedstuff supplements, to increase calcium content.

Our products are monitored in the system of QS Qualität und Sicherheit GmbH Bonn, and audited and certified by IFTA AG Berlin.

Thereby, the whole production process from quarrying by crusher, grinding, drying right up to packaging, is subject to specific requirements.

There is also a Kosher-certification by YESHIVAT "HAREI YEHU-DAH". The Halal-certification will be done no later than 2018.

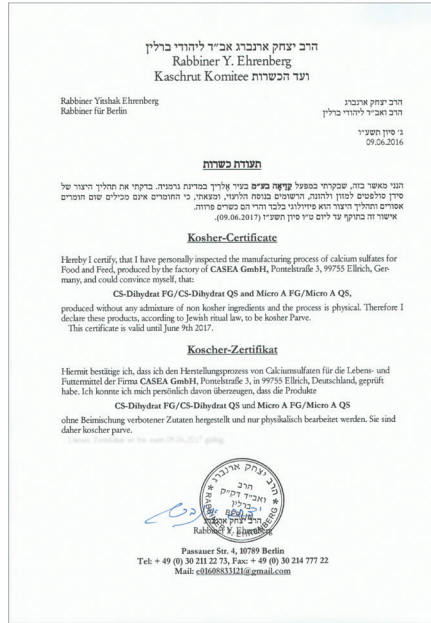
Our CS-Dihydrate FG and the Micro A FG (ffod) is a finely ground natural gypsum, for use as a food additive calcium-sulphate E516 in accordance with German ZVerkV (German regulation for food additives) and ordinance (EU) 231/2012. No additives, aromas or auxiliary materials are used for the production of CS-Dihydrat FG and Micro A FG. CS-Dihydrat FG and Micro A FG do not contain any GMO (genetically modified organisms) and are not produced from them, which is why on that account the labelling obligation in accordance with ordinance (EU) n. 1829/2003 is waived.



> OUR SPECIAL PRODUCTS



QS-certificate for production and sales of calcium-sulphate at stage "Feed sector"



Kosher certificate for production and sales of calcium-sulphate



health certificate fort conformity to the european ordinance 231/2012

> The CASEA product range: for special applications			
	Products	Description	Areas of application
<b>Calcium sulphate-dihydrate</b>	CS-Dihydrat QS	The finest ground natural gypsum without additives or activators; the production process and the product itself are subject to the external quality surveillance.	Individual feedstuffs according to positive list, and feedstuff addition for pets and livestock
	CS-Dihydrat FG	The finest ground natural gypsum for use as a food additive calcium sulphate E516, in accordance with ZVekV [Additive transport regulations] and Regulation (EU) 231/2012 without using any additives, aromas or auxiliary materials.	Food additive, acidity regulator, stabilising agent, additive in baking powders, carrier substance for food additives in premixes
<b>Calcium sulphate anhydrite</b>	Micro A QS	The finest ground natural anhydrite without additives or activators; the production process and the product itself are subject to external quality surveillance.	Individual feedstuffs according to positive list, and feedstuff addition for pets and livestock.
	Micro A FG	The finest ground natural anhydrite for use as a food additive calcium sulphate E516, in accordance with ZVekV [Additive transport regulations] and Regulation (EU) 231/2012 without using any additives, aromas or auxiliary materials.	Food additive, acidity regulator, stabilising agent, additive in baking powders, carrier substance for food additives in premixes.

# Good service at CASEA? That goes without saying!

In order to maintain our reputation as a reliable partner, we not only place great importance on offering our industrial customers the best possible quality and the most suitable products but also – and above all – on giving them a quality service. Besides comprehensive advice, this also includes providing them with detailed product information and a delivery service that meets their needs.

### Always open to new ideas

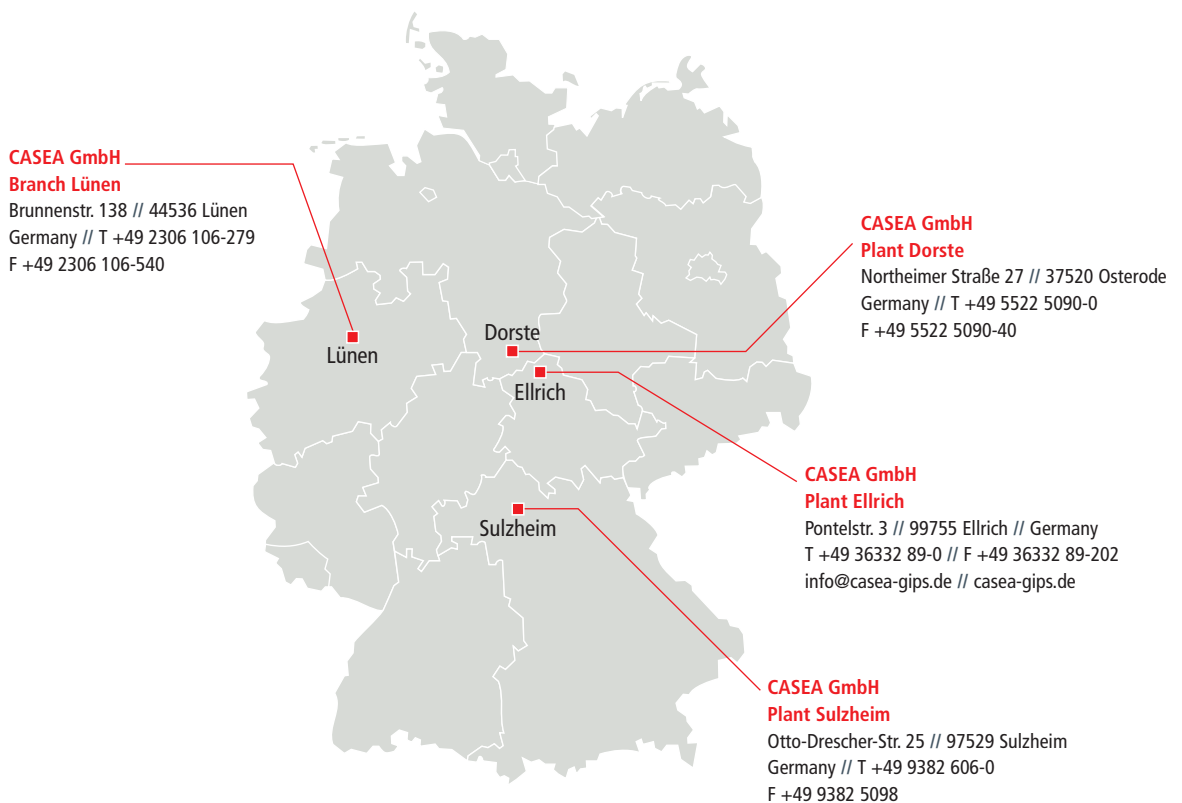
Being a customer-focused business, CASEA provides comprehensive services in the area of bespoke products. Whether it be a special formula or a particular mixing ratio – CASEA can supply you with top quality products that have been specially adapted to fulfil your individual needs. CASEA is also flexible when it comes to delivery. Its products are available in a wide range of packaging: in different sized sacks and big bags or in bulk as a loose product.

### How can we help?

Do you have some questions about the services we provide our industrial customers? Or would you like us to send you an offer? Our staff are there to provide you with advice on our extensive product range and to help you select the right product!



### 4 production facilities in Germany



# CASEA

WORKING FOR THE FUTURE

Being a specialist for mineral products, CASEA supplies its industrial customers with a wide range of calcium sulfates. CASEA is part of REMONDIS, one of the world's largest recycling, service and water companies. The company group has more than 500 branches and associated businesses in 34 countries across Europe, Africa, Asia and Australia. With over 30,000 employees, the group serves around 30 million people as well as many thousands of companies. The highest levels of quality. Working for the future.

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A company of the REMONDIS Group