



# PRESENTATION PRODUCT

The Products in Brief





## Coatings

- MIOX®
- Wollastonite
- Talc
- Kaolin
- Zeolite

## Ceramic

- MIOX® ME

## Friction

- MIOX®
- Wollastonite
- MICA HLP
- MICA HLM

## Polymers

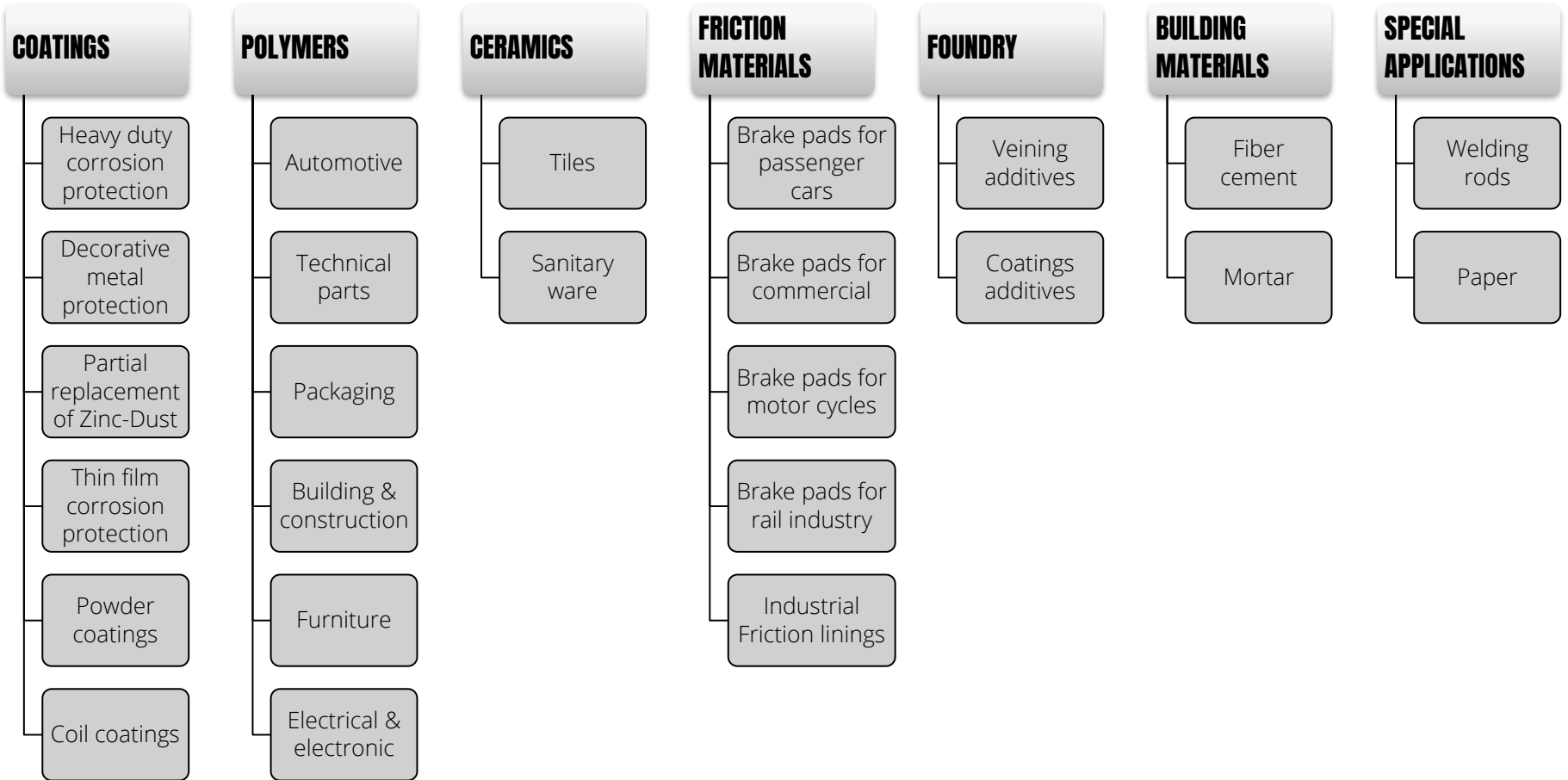
- MIOX® Micro
- MIOX® Submicro
- Wollastonite
- MICA HLP
- MICA HLM
- Talc
- Zeolite

## Foundry

- MIOX®
- MICA HLM
- MICA HLP

## Building Material

- MIOX®
- Wollastonite
- MICA HLP
- MICA HLM
- Talc
- Zeolite



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Mineralogy:	Hematite
Chem. formula:	$\text{Fe}_2\text{O}_3$ (iron-III-oxide)
Color:	grey to reddish brown metallic
Density:	4,8 g/cm <sup>3</sup>
Hardness:	6,0–6,5 Mohs



Micaceous Iron Oxides (MIO) are a rare mineral.

Significant resources are known in Europe (Austria), Asia (China), Australia and Africa. There are major differences in mineralogy, lamellarity and iron content between these sources.

**MIOX®  
ME-Series**

**MIOX®  
Standard  
Grades**

**MIOX®  
Micro und  
Submicro**

< 1000 µm

< 100 µm

< 50 - 2.5 µm

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Product	ME 63/125	ME 100/200	ME 200/400	ME 200/600	ME 600/1000
Sieve residue, upper cut (EN ISO 4610)	traces > 125 µm	traces > 200 µm	traces > 400 µm	traces > 600 µm	traces > 1000 µm
Sieve residue, lower cut (EN ISO 4610)	min. 90 % > 63 µm	min. 90 % > 100 µm	min. 90 % > 200 µm	min. 90 % > 200 µm	min. 60 % > 600 µm

Color	grey/metallic
Particle shape	lamellar
Iron content (Fe <sub>2</sub> O <sub>3</sub> acc. to ISO 1248)	> 85 %
Density g/m <sup>3</sup> (ISO 787/10)	4,8
Loss on ignition (800 °C)	< 3 %
pH-value (ISO 787/9)	9 ± 1



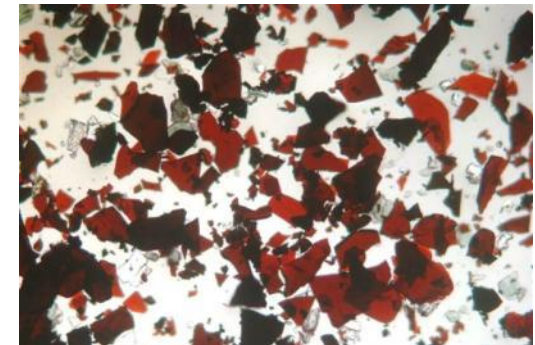
Product	MIOX® ME	MIOX® ME 400	MIOX® ME 600
Sieve residue 630 µm (EN ISO 4610)	---	---	traces
Sieve residue 400 µm (EN ISO 4610)	---	traces	---
Sieve residue 160 µm (EN ISO 4610)	traces	---	---
Sieve residue 100 µm (EN ISO 4610)	> 25 %	> 85 %	> 85 %

Color	grey /metallic
Particle shape	lamellar
Iron content (Fe <sub>2</sub> O <sub>3</sub> acc. to ISO 1248)	> 85 %
Density g/m <sup>3</sup> (ISO 787/10)	4,8
Lost on ignition (800 °C)	< 3 %
pH-value (ISO 787/9)	9 ± 1



Product	MIOX® AS	MIOX® SG	MIOX® DB
Sieve residue Upper cut (EN ISO 4610)	traces > 100 µm	traces > 100 µm	traces > 100 µm
Sieve residue Lower cut (EN ISO 4610)	max. 5 % > 63 µm	5 - 15 % > 63 µm	25 - 35 % > 63 µm
Type (ISO 10601:2007)	1	2	3

Color	grey / metallic
Particle shape	lamellar
Grade (ISO 10601:2007)	A
Iron content (Fe <sub>2</sub> O <sub>3</sub> acc. ISO 1248)	> 85 %
Density g/m <sup>3</sup> (ISO 787/10)	4,8
Loss on ignition (800 °C)	< 3 %
pH-value (ISO 787/9)	9 ± 1





	Micro 30R	Micro 40R	Micro 50R
Color	reddish		
d <sub>98</sub>	30 µm	40 µm	50 µm

	Micro 30	Micro 40	Micro 50
Color	grey / metallic		
d <sub>98</sub>	30 µm	40 µm	50 µm

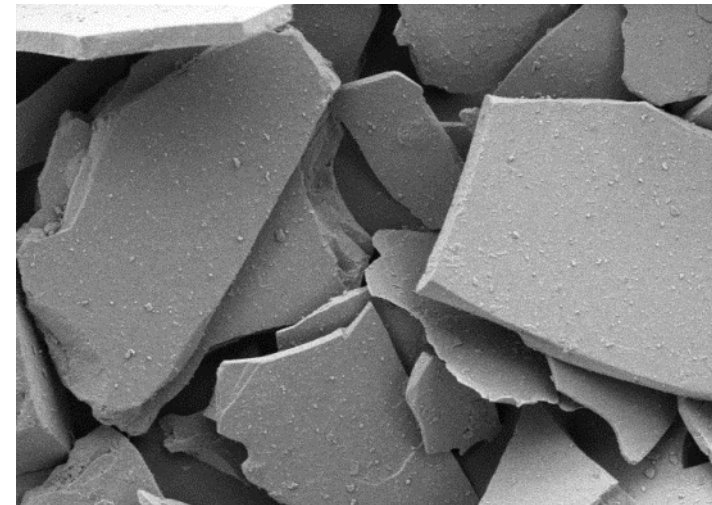
	Micro 10/30	Micro 10/40	Micro 10/50
Color	grey / metallic, neg a*		
d <sub>98</sub>	30 µm	40 µm	50 µm

Shape	lamellar
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	Micro 20	Micro 15	Micro 10
d <sub>98</sub>	20 µm	15 µm	10 µm

	Submicro 5	Submicro 2,5
d <sub>98</sub>	5 µm	2,5 µm

Shape	lamellar
Color	red



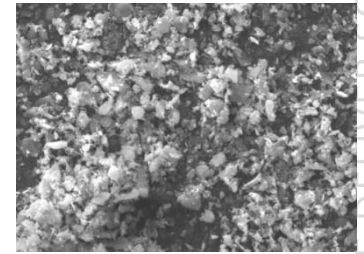
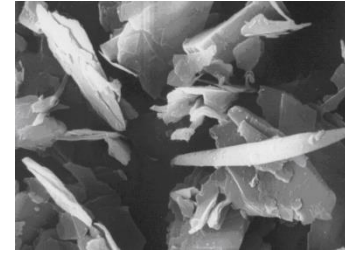
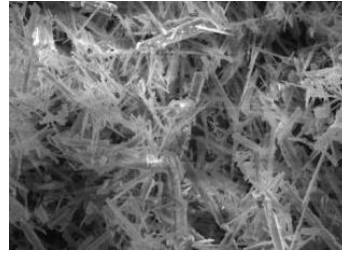
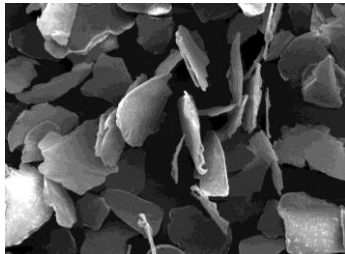
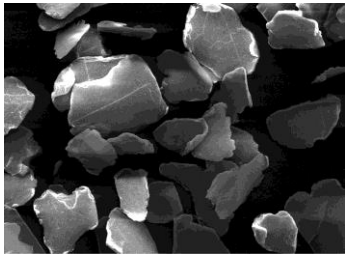
**MICA  
Muscovite  
HLM**

**MICA  
Phlogopite  
HLP**

**Wollastonite  
HAR + LAR**

**TALMIO  
Premium &  
Superior**

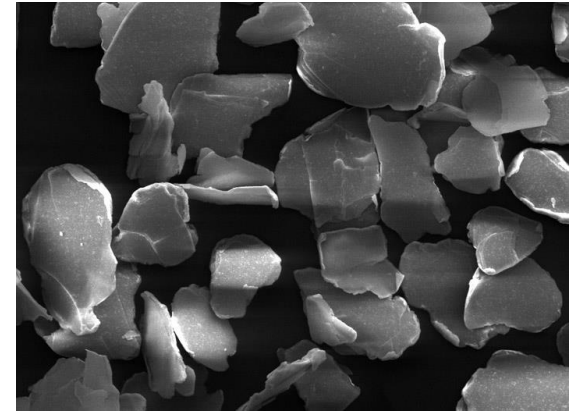
**ZEMIO  
Zeolith**



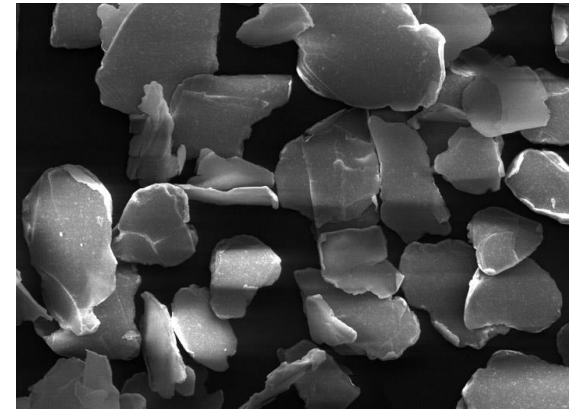
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Shape:	platy
Chem. formula:	$\text{KAl}_2[\text{AlSi}_3\text{O}_{10}(\text{F},\text{OH})_2]$
Color:	white to grey
Density:	2,8 g/cm <sup>3</sup>
Hardness:	2,5 Mohs



Product	HLM 3	HLM 5	HLM 7	HLM 10	HLM 15
Particle shape	high lamellar				
d <sub>50</sub> (Cilas 1064)	3 µm	5 µm	7 µm	10 µm	15 µm
d <sub>98</sub> (Cilas 1064)	< 14 µm	< 15 µm	< 20 µm	< 25 µm	< 40 µm
Aspect ratio	7:1	10:1	15:1	18:1	20:1

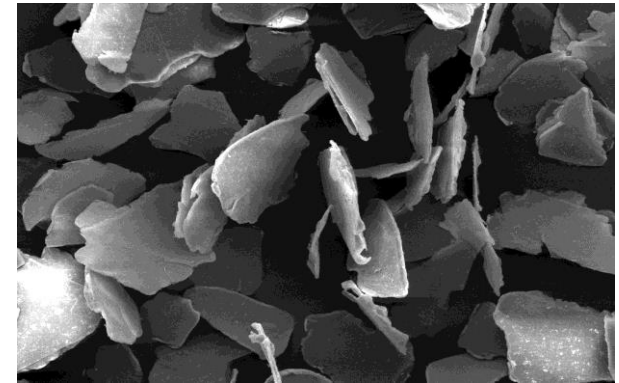


Product	HLM 35	HLM 100	HLM 150	HLM 850
Particle shape	high lamellar			
d <sub>50</sub> (Cilas 1064)	35 µm	< 50 µm	< 70 µm	---
d <sub>98</sub> (Cilas 1064)	< 120 µm	< 150 µm	< 200 µm	---
Sieve (EN ISO 4610)	---	---	---	traces at 1000 µm
Sieve (EN ISO 4610)	---	---	---	min. 80 % < 710 µm
Aspect Ratio	30:1	40:1	45:1	55:1



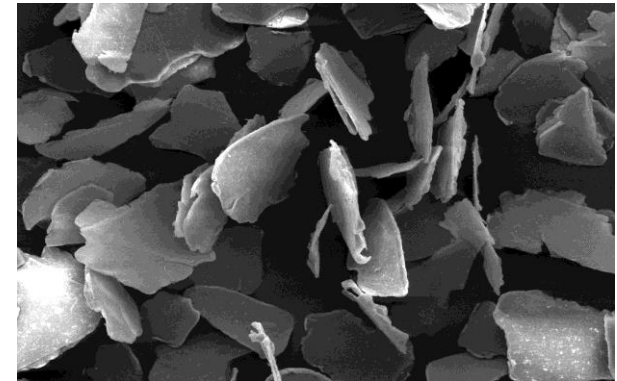
Shape:	platy
Chem. formula:	$\text{KMg}_3[\text{AlSi}_3\text{O}_{10}(\text{F},\text{OH})_2]$
Color:	beige to brown
Density:	2,8 g/cm <sup>3</sup>
Hardness:	2,5 Mohs

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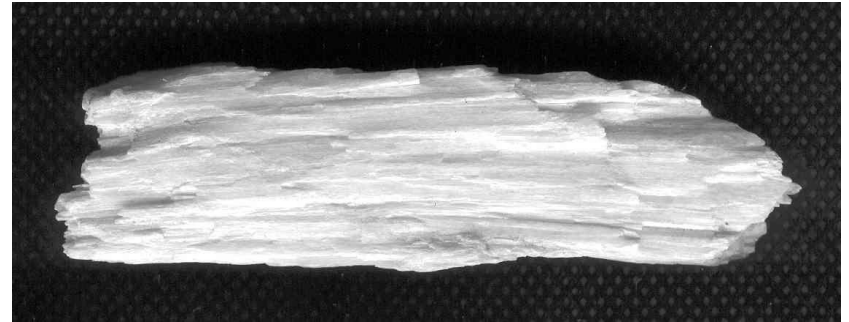


Product	HLP 3	HLP 5	HLP 7	HLP 10	HLP 15
Particle shape	high lamellar				
d <sub>50</sub> (Cilas 1064)	3 µm	5 µm	7 µm	10 µm	15 µm
d <sub>98</sub> (Cilas 1064)	< 14 µm	< 15 µm	< 20 µm	< 25 µm	< 50 µm
Aspect ratio	7:1	10:1	15:1	18:1	20:1

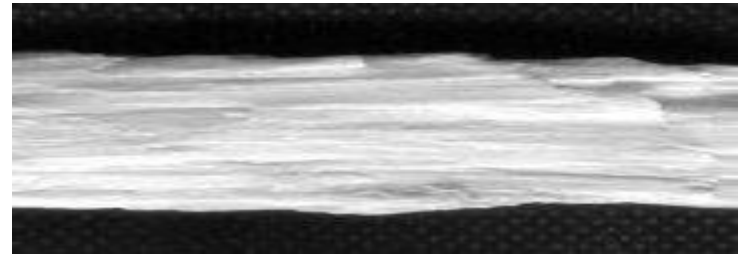




Product	HLP 35	HLP 100	HLP 150	HLP 2000
Particle shape	high lamellar			
d <sub>50</sub> (Cilas 1064)	35 µm	< 50 µm	---	---
d <sub>98</sub> (Cilas 1064)	< 120 µm	< 315 µm	---	---
Sieve (EN ISO 4610)	---	---	min. 99,9 % < 250 µm	max. 15 % < 160 µm
Sieve (EN ISO 4610)	---	---	50 – 60 % < 150 µm	max. 0,15 % > 2000 µm
Aspect ratio	30:1	40:1	45:1	65:1



Shape:	acicular (needle-like) crystal shape
Chem. formula:	$\text{CaSiO}_3$
Color:	white
Density:	2,8 g/cm <sup>3</sup>
Hardness:	5 Mohs



LAR-grades	Micro L	Micro 8H	Micro 12H
d <sub>50</sub> (Cilas 1064)	8,5 µm	9 µm	11 µm
Aspect ratio	6:1	7:1	9:1

LAR-grades	LAR 230#	LAR 325#	LAR 400#
Sieve residue (EN ISO 4610)	0,5 – 15 % at 63 µm	0,5 – 5 % at 45 µm	0,5 – 5 % at 38 µm

Shape	acicular
Color	white

HAR-grades	Micro 8	Micro 12
d <sub>50</sub> (Cilas 1064)	8 µm	12 µm
Aspect ratio	20:1	15:1



HAR-grades	Submicro 2-10	Submicro 4-15
d <sub>50</sub> (Cilas 1064)	2,5 µm	4 µm
Aspect ratio	7:1	12:1

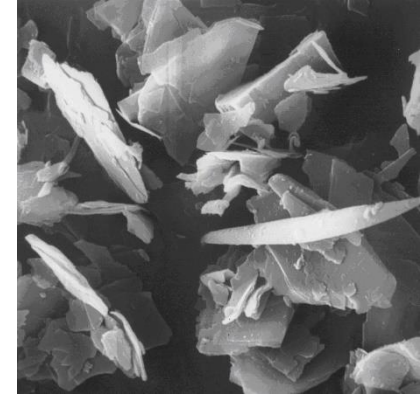
Shape	acicular
Color	white

HAR-grade	HAR 50	HAR 55	HAR 60
d <sub>50</sub> (Cilas 1064)	53 µm	41 µm	35 µm
Sieve (EN ISO 4610) > 125 µm	-	-	1.9 %
Sieve (EN ISO 4610) > 75 µm	-	-	33.3 %
Sieve (EN ISO 4610) > 45 µm	-	-	96.6 %
Aspect ratio	14:1		



Shape:	platy
Chem. formula:	$\text{Mg}_3[\text{Si}_4\text{O}_{10}(\text{OH})_2]$
Color:	white
Density:	2,8 g/cm <sup>3</sup>

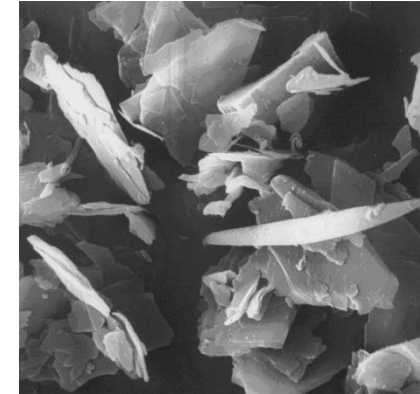
LOI < 10 %



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Product		Talmio P 2.5	Talmio P 3	Talmio P 4.5	Talmio P 6	Talmio P 8
Particle shape		high lamellar				
d <sub>50</sub>	Cilas 1064	2,5 µm	3 µm	4,5 µm	6 µm	8 µm
	Sedigraph	0,9 µm	1,1 µm	1,6 µm	2,2 µm	3 µm
d <sub>98</sub>	Cilas 1064	7 µm	8,5 µm	12,5 µm	16 µm	22 µm
	Sedigraph	< 4 µm	< 5 µm	< 7 µm	< 9 µm	< 13 µm

LOI < 7 %



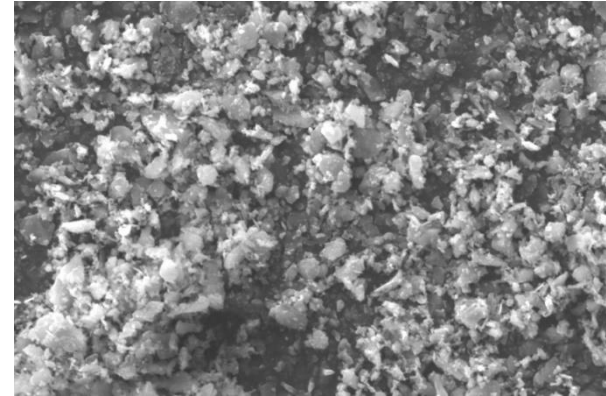
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Product		Talmio S 2.5	Talmio S 3	Talmio S 4.5	Talmio S 6	Talmio S 8
Particle shape		high lamellar				
d <sub>50</sub>	Cilas 1064	2,5 µm	3 µm	4,5 µm	6 µm	8 µm
	Sedigraph	0,9 µm	1,1 µm	1,6 µm	2,2 µm	3 µm
d <sub>98</sub>	Cilas 1064	7 µm	8,5 µm	12,5 µm	16 µm	22 µm
	Sedigraph	< 4 µm	< 5 µm	< 7 µm	< 9 µm	< 13 µm



Shape:	porous
Chem. formula:	$M_{x/n}[(AlO_2)_x(SiO_2)_y]$
	M Alkaline metal, alkaline earth metal (Na, K, Ca, Mg, ...)
	n valence of the cation
Color:	light grey
Density:	2,0 – 2,5 g/cm <sup>3</sup>





Product		Zemio 5	Zemio 7	Zemio 10	Zemio 15	Zemio 20
Particle shape		porous				
d <sub>50</sub>	Cilas 1064	2.1 µm	3 µm	3.5 µm	4.5 µm	5.5 µm
d <sub>98</sub>	Cilas 1064	5 µm	7 µm	10 µm	15 µm	20 µm



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