

**POWER OF POWDER**

- Micronised Calcium Carbonate
- Coated Calcium Carbonate
- Modified Calcium Carbonate
- Chips and Granulates
- Precipitated Calcium Carbonate
- Micronised Dolomite
- Dolomite chips and granulates

- Barium Sulphate (Baryte)
- Kaolin
- Aluminium Silicates
- Talc
- Mica
- Aluminium Trihydrate
- Magnesium Hydroxide

**TURKCARB®**

MUĞLA NIĞDE JEDDAH

SINPAŞ HOLDİNG

Mikron'S

# Mikron'S

A Company in adding value to minerals



## Sinpaş Holding in Brief

Sinpaş Holding, representing foremost industrial and finance companies, is a group of affiliates owned by the Çelik Family.

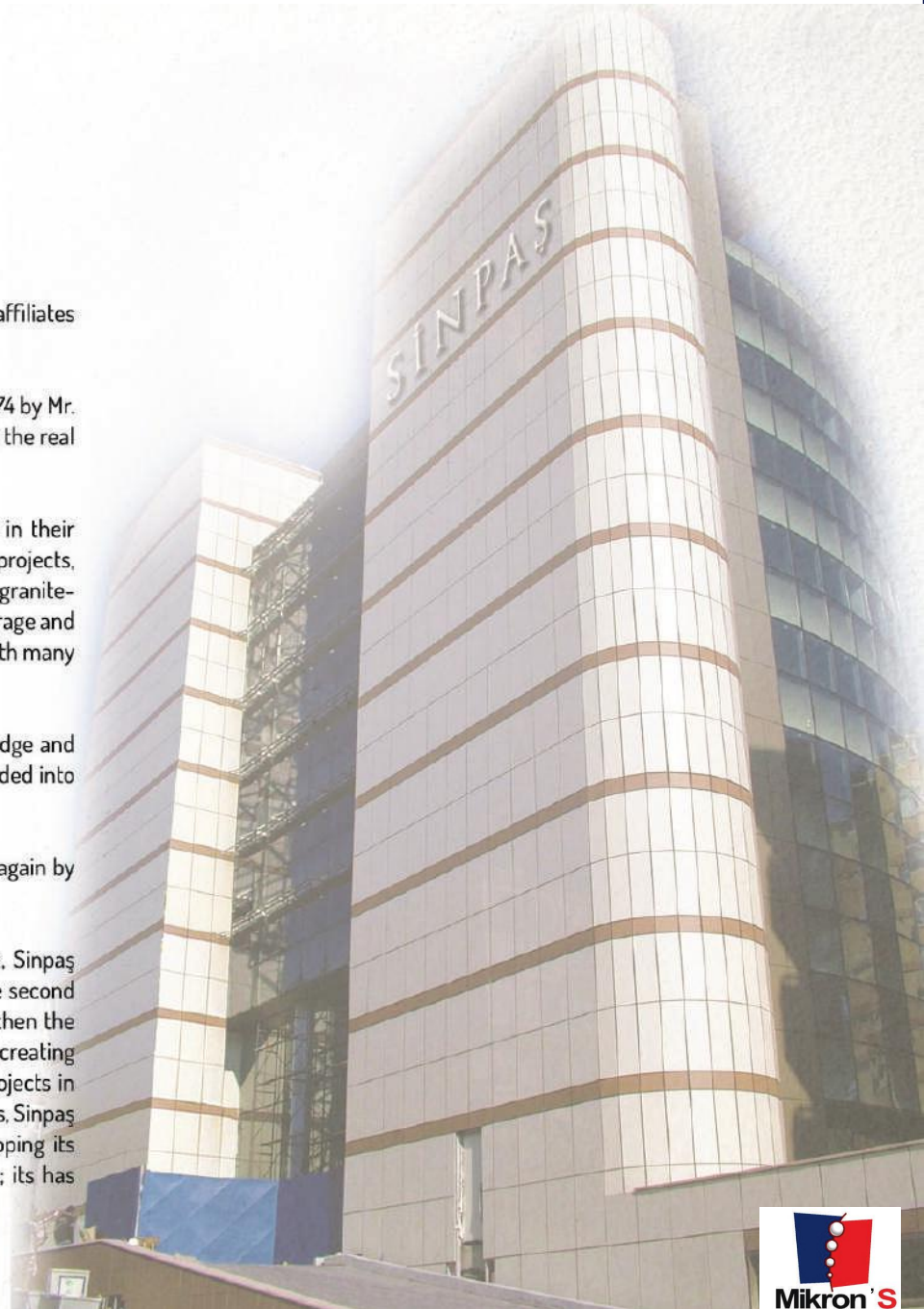
The forming Sinpaş Holding has founded by the Sinpaş Yapı Endüstrisi ve Ticaret A.Ş. in 1974 by Mr. Avni Çelik Civil Engineer. As of the 1990's, Sinpaş has been one of the leading developers in the real estate sector in Turkey.

Sinpaş Holding consists of more than 12 companies, almost all of which are the leader in their respective fields. Primary activity fields of Sinpaş Holding are property and luxury housing projects, residences and commercial real estate production and management, financial services, granite-ceramic production, calcite production, wooden furniture manufacturing, real estate brokerage and leasing services. In addition to its affiliates, the group also has stakes in many companies with many domestic and foreign partners.

As a respected brand, Sinpaş Holding with its strong collaborations along with its knowledge and experience in the Turkish market has grown in its primary fields of activity and had extended into world markets.

Sinpaş GYO is the only listed company in Sinpaş Holding 51% of the Sinpaş GYO is owned again by Çelik family and the remaining 49% is the free float in BIST.

With the founding of Sinpaş GYO under the Real Estate Company Conversation project, Sinpaş Holding has aimed to combine the group's estate activities under one roof. The aim of the second stage of this project is to execute public offering of 49% of Sinpaş GYO shares to strengthen the financial structure. Through the procurement of new properties for housing development, creating financial resource for exciting housing projects and also for developing now housing projects in other cities such as Ankara, Muğla, İzmir and Adana. Following the public offering if its shares, Sinpaş GYO has strengthened its position by increasing its competitive strength and by developing its corporate profile with the addition of respected corporate investors to its shareholders; its has combined its high brand strength with its developing corporate structure.







#### Sinpaş Gayrimenkul Yatırım Ortaklığı A.Ş.

Boasting a 40-year background and expertise in the real estate market, the Sinpaş reshaped their organization at the end of 2006 upon which it started to implement its activities for developing housing projects under the umbrella of Sinpaş REIT (GYO). Ranked second among top-demanded companies of the industry according to a research conducted by Capital in 2010, Sinpaş REIT (GYO) is a public real estate investment trust established pursuant to the relevant regulations of the Capital Market Board. Sinpaş REIT (GYO) is traded at the Istanbul Stock Exchange with a public share of 49% and a market value of 594 million TL.

Thanks to a strong workforce, a secure financial framework and sound management Sinpaş REIT (GYO) continues to create value for its shareholders and partners with 37+ of shares representing Sinpaş REIT (GYO) capital actually circulating in the market. With its portfolio size of 1.85 billion TL, Sinpaş REIT (GYO) is ranked third among 21 real estate investment trusts currently traded in ISE.

Maintaining the mission of the Sinpaş Holding that contributes to the urban transformation process of Turkey by appealing to an extensive customer audience and taking the lead in the development of prestigious residential areas in various regions, Sinpaş REIT (GYO) carries on its operations across the same service and responsibility approach. While offering a favorable living space and profitable investment with its prestigious and exquisite projects on one side, Sinpaş REIT (GYO) contributes to developing and enhancing the areas within its investment scope on the other side.

Sinpaş REIT's (GYO) prospect is to convey to future its deep-rooted expertise in land development, project design, marketing and sales with its highly qualified and experienced staff, and to turn out to be the leader company of Turkey in the housing market.



#### Servet Gayrimenkul Yatırım Ortaklığı A.Ş.

SERVET GYO was established with the aim of gathering all commercial real estate projects that are in the portfolio of Sinpaş Holding and all of the accumulated experience and knowledge under the same roof. Commercial Real Estates, Shopping Malls, Industrial Service buildings, etc... are managed by SERVET GYO in the Holding.

Servet Real Estate Investment Company was incorporated in May 2009 with the consent of Capital Markets Board in order to gather all commercial and industrial real estate such as shopping malls, office buildings, business and industrial centers, warehouses and logistics centers which are already under the portfolio of Sinpaş Group and will be constructed in the future under single roof. It is aimed to achieve fixed rent income instead of sales income.

Servet Real Estate Investment Company is currently maintaining its studies for forming a portfolio and plans to go public in as immediate as possible and to take part amongst the top ranked three real estate investment companies of Turkey.



#### Sinpaş Yapı Endüstrisi ve Ticaret A.Ş.

Established in 1974 as a construction company in Ankara and moved to Istanbul in 1985. The company was responsible from the sales and marketing of the real estate projects developed within the Group. Sinpaş Yapı has completed 11 projects with 740.000 sqm construction area consisting of approx. 4.500 housing units to date. As of today the company undertakes the construction activities and continues to develop commercial properties.



#### Seranit Granit Seramik Ticaret A.Ş.

As being the first ceramic producer of Turkey, Seranit produces flooring and sidings by the transfer of glass in to ceramic under the world renowned "Seranit" brand in the largest integrated facilities in Europe. The company has yearly 8.5 million sqm production capacity and its sales network includes 258 point of sales in Turkey with more than 50 showrooms and 82 point of sales in 21 foreign countries. The company exports the most of its products to the foreign markets.



#### Prodek Yapı Dekorasyonu Ticaret A.Ş.

Until 2004 the company, which produces high quality wooden furniture for kitchens and bathrooms under the "Vanucci" brand, only furnished its services to Sinpaş, however since 2005 it has expanded its operations to the domestic market.



#### GYE Elektrik Üretim A.Ş.

GYE has founded to evaluate renewable energy sources of Turkey without increasing any carbon emissions to atmosphere. GYE has currently working on Hatay 30 MW project and Edirne 130 MW Project principally. GYE is currently analysing several geothermal, green-energy and cogeneration projects in Turkey.



#### United Compounding Industrial Corporation (UCIC)

Established in 2013, is one of the largest and modern compounding production companies in the Middle East with Polycas commercial brand name of its produced compounds and calcium carbonates. Our plant is located in the Kingdom of Saudi Arabia (Jeddah II Industrial area) with capacity 200000 tpa which will be executed in two phases.

The plant is export oriented with production of comprising of high filled grades of calcium carbonate in polyethylene and polypropylene base compositions. CaCO<sub>3</sub> concentrates are targeted to be used enhanced performance and cost reduction for many plastic applications i.e. film, molding and extrusion applications primarily in conjunction with PE and PP. Our objective is to focus on the highest growing plastic segments in key markets which would allow our plant to operate at highest capacity while providing POLYCA with a unique advantage to our customers.





*Group composed of 4 main sub -divisions*

*1-Construction & Asset Management Companies*

*2-Industry and Manufacturing Companies*

*3- Energy and Mining*





# Who is Holding?



## 1-Construction & Asset Management Companies



# Who is Holding?

## 2-Industry and Manufacturing





# Who is Holding?

*3-Energy and Mining*



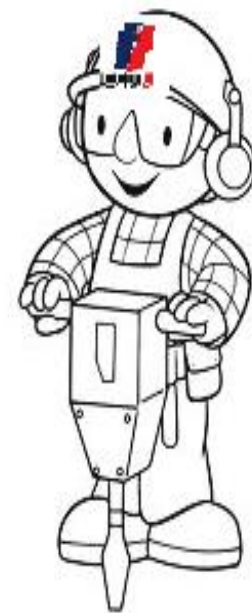
## Who is Mikron'S

- Headquarters in Istanbul ,factories in Nigde,Mugla,Jeddah.
- Focus on Industrial Minerals
  - *Calcium Carbonate (untreated and treated) – with Turkcarb® grades*
  - *Calcium Carbonate chips and granules*
  - *Dolomite,Talc,Mica and Baryte.*
  - *Trade products for common customer groups (materials,etc...from well known companies in their business segments)*
- *Exports 70% of it's Capacity*
- Production capacity (uncoated) : 250.000 tpy (Nigde plant)
- Coating capacity : 120.000 tpy (Nigde plant)
- Granule production capacity : 70.000 tpy (Nigde plant)
- Operates with 120 People

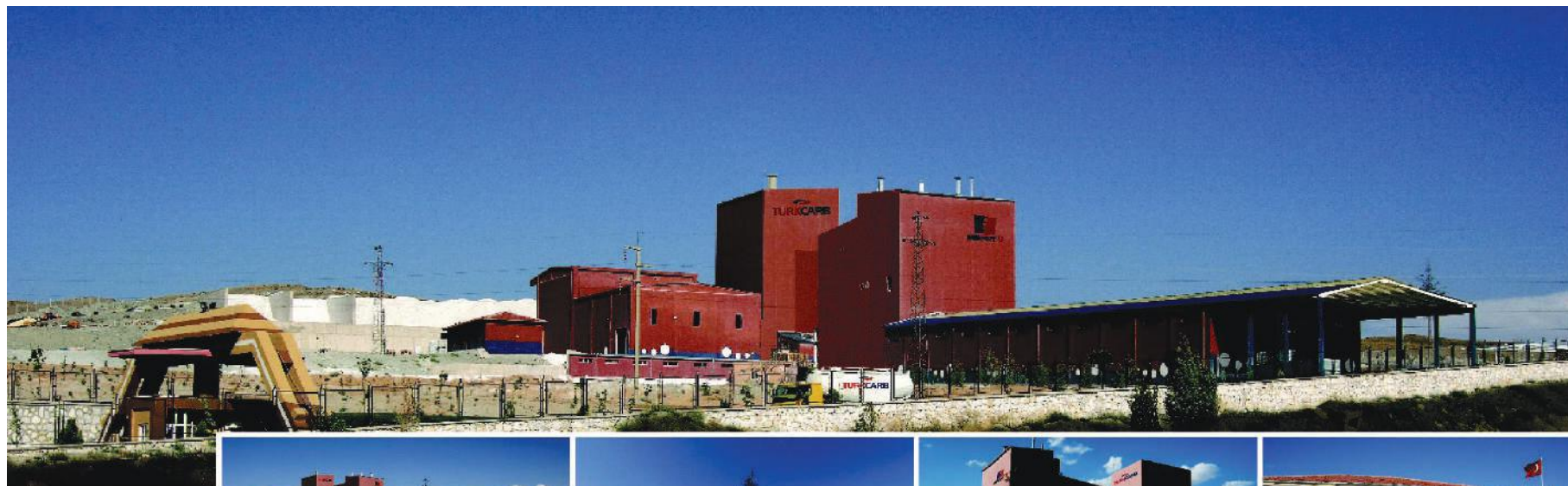


## Mikron'S Historical Roots - Organisational Development

- 2004 Foundation of company and erection of ATR lines
- 2005 Ball mill factories started to give service
- 2006 Ceramic Lined Talc factory in service.
- 2007 Chips & Granule line 1 in service
- 2007 Coating capacity doubled with new lines.
- 2009 Post separation micronisation plant in service.
- 2009 New Ball mill factories line 2 in service.
- 2011 New Chips & Granule line 2 in service
- 2011 New Talc 2 factory has taken in to service.
- 2012 The third coating plant is in service.
- 2015 Jeddah  $\text{CaCO}_3$  and Compound Project started.
- 2016 Mugla  $\text{CaCO}_3$  operation started .







Mikron'S plant has composed of two sub-plants that settled on 130.000 m<sup>2</sup> area, situated on Nigde-Kayseri road, the 7<sup>th</sup> km.



All packing types including big truck deliveries are possible for future enlargements.

Mikron'S is the sole Calcium Carbonate plant in Turkey that can handle final product performance tests in segmental applications.







YEAR 2012



### QUARRIES AND RAW MATERIAL

Calcium Carbonate as a vital mineral, has so many application fields in industry. Reserves in Turkey specifically differ from other reserves in the world due to its whiteness and purity.

Mikron's operating its own quarries which are capable of supplying long term raw material demands. Quarries are located very close to plant's and operated by modern machineries.

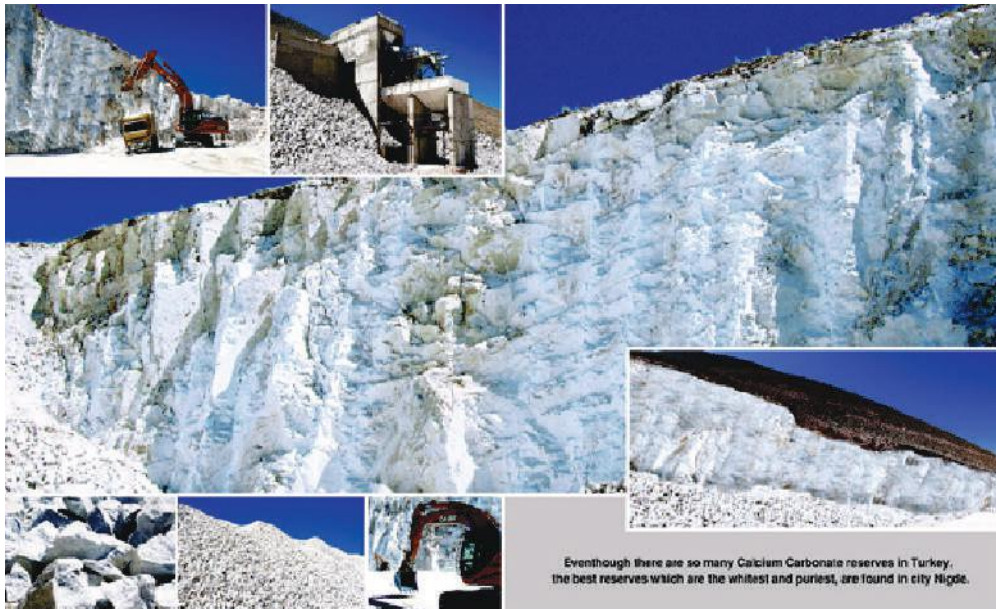
Pretreatment facility of quarries are located on 350 hectares area. Mikron's also started to operate owned talc mines since 2012 in Turkey. Since 2016, Mikron's also started to export several industrial raw materials especially Calcium Carbonate to several applications worldwide.



Calcite which is composed of Calcium Carbonate mainly is vital mineral, has so many applications in industry. Even though there are so many Calcium Carbonate reserves in Turkey, the best reserves which are the whitest and purest, are found in city Higde.

Mikron's is operating its open quarry which is situated on 200 hectares area, just 4 km away from the plant. Mikron's quarry capable of supplying long term demand of material

which is operated by open pit technique with machinery. Only selected material the plant for production.



Even though there are so many Calcium Carbonate reserves in Turkey, the best reserves which are the whitest and purest, are found in city Higde.



**TURKCARB®**

**CALCIUM CARBONATE**

### Product Specifications

Natural, calcium carbonate manufactured from high purity and whiteness limestone.

### Physical Properties

|                      |                        |
|----------------------|------------------------|
| Density (ISO 787-10) | 2,7 gr/cm <sup>3</sup> |
| Hardness             | 3 Mohs                 |
| Refractive Index     | 1,59                   |

### Raw Material

Mikron'S Quarry - NIGDE



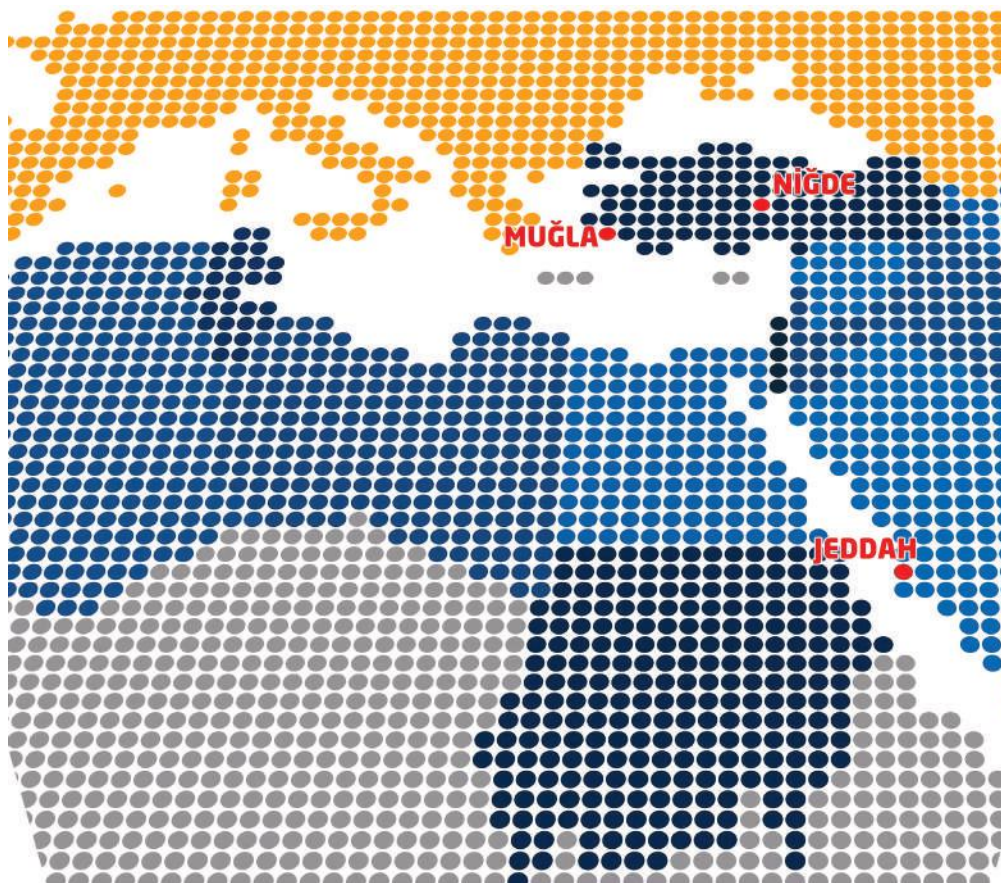
### Chemical Properties

|                                |          |
|--------------------------------|----------|
| CaCO <sub>3</sub>              | > 99,5 % |
| MgCO <sub>3</sub>              | < 0,20 % |
| Fe <sub>2</sub> O <sub>3</sub> | < 0,01 % |
| SiO <sub>2</sub>               | < 0,01 % |
| Al <sub>2</sub> O <sub>3</sub> | < 0,02 % |
| HCL insoluble content          | < 0,01 % |

### General Properties

|   |                 |
|---|-----------------|
| Lightness, L* (ASTM E-313) Elrepho 450X min.                        | 99 %            |
| <b>-Brightness (Ry, DIN 53163) Elrepho 450X min.</b>                | <b>Max 96 %</b> |
| Moisture-Ex.works (ISO 787-2) max.                                  | 0,3 %           |
| pH (ISO 787-9)  | 9               |
| <b>-Brightness (Ry, DIN 53163) Elrepho 450X min. (Mugla Quarry)</b> | <b>≥ 96 %</b>   |

## MIKRON'S NEW INVESTMENTS





## Jeddah Plant/ Saudia Arabia

Will be in service April 2018

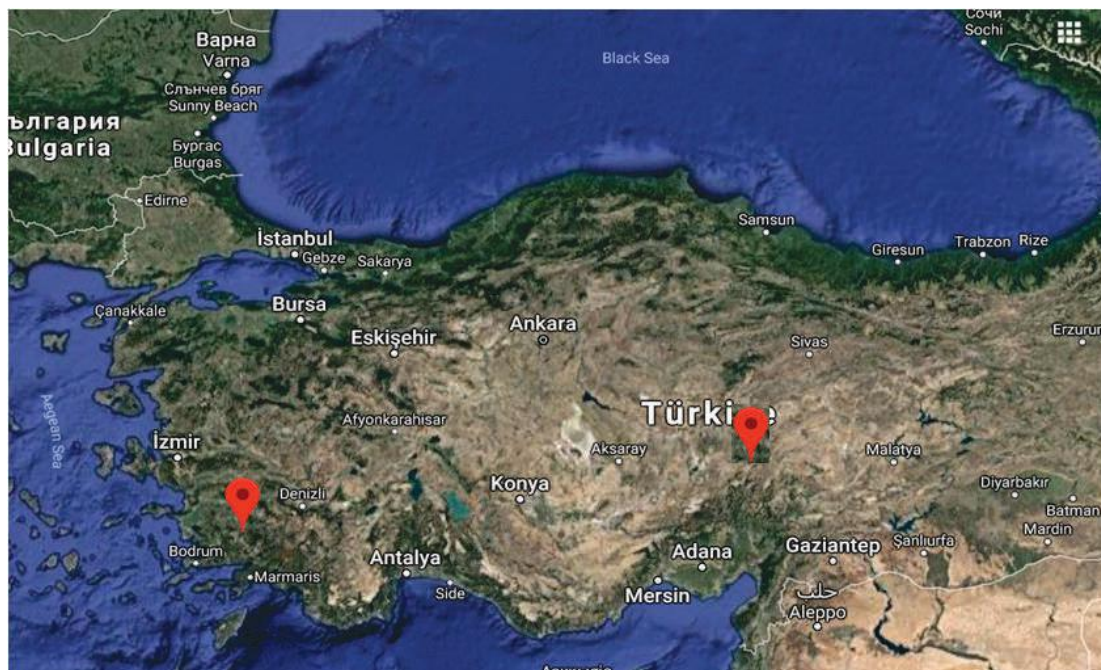
Serve to GCC region only





# Mugla Plant will be in service June 2018

*Fully dedicated to Exports*



| Parameter     | Niğde White | Yatagan Normal | $\Delta_{min}$ |
|---------------|-------------|----------------|----------------|
| Ry ,parlaklık | 95,21       | 97,39          | +2,18          |
| Beyazlık      | 91,25       | 93,70          | +2,45          |
| DIN 6167      | 1,92        | 1,42           | -0,50          |
| L*            | 98,05       | 98,98          | +0,93          |
| a*            | 0,31        | -0,15          | -0,46          |
| b*            | 0,90        | 0,68           | -0,22          |

# TURKCARB® MICRONISED PRODUCTS

| Product Name                   | Product Name                     | Packaging                       |
|--------------------------------|----------------------------------|---------------------------------|
| <i><b>Turkcarb® UF</b></i>     | <i><b>Turkcarb® UF</b></i>       | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 95</b></i>     | <i><b>Turkcarb® 5</b></i>        | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 75X</b></i>    | <i><b>Turkcarb® 5KE</b></i>      | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 65</b></i>     | <i><b>Turkcarb® 5A</b></i>       | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 1/1X</b></i>   | <i><b>Turkcarb® 10/10X</b></i>   | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 1K/1XK</b></i> | <i><b>Turkcarb® 15/15X</b></i>   | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 2/2X</b></i>   | <i><b>Turkcarb® 20/20X</b></i>   | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 2X</b></i>     | <i><b>Turkcarb® 15K/15KX</b></i> | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 2K/2XK</b></i> | <i><b>Turkcarb® 40K/40KX</b></i> | <i><b>Paper bag, SB, BB</b></i> |
| <i><b>Turkcarb® 5K/5KX</b></i> | <i><b>Turkcarb® 60K/60KX</b></i> | <i><b>Paper bag, SB, BB</b></i> |
| Product Name                   | Product Name                     | Packaging                       |
| <i><b>Turkcarb® M110</b></i>   | <i><b>Turkcarb® M140</b></i>     | <i><b>PP bag, SB</b></i>        |
| <i><b>Turkcarb® M120</b></i>   | <i><b>Turkcarb® M200</b></i>     | <i><b>PP bag, SB</b></i>        |
| <i><b>Turkcarb® M130</b></i>   |                                  | <i><b>PP bag, SB</b></i>        |

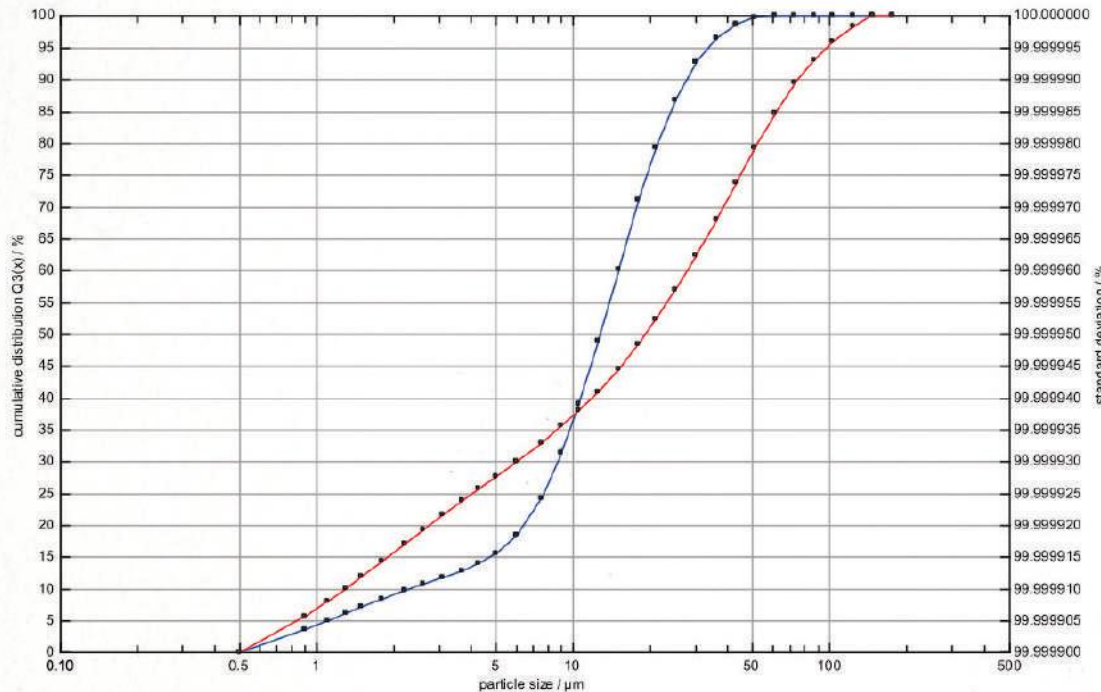
## TURKCARB® PRODUCT OVERVIEW AND ADVISE TABLE FOR PAINT APP.

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# Sustainable LOW OIL/BINDER ABSORPTION Technology

## Overseperated Calcium Carbonate



Decreasing the oil absorption of calcium carbonate will bring so many advantages to processors to decrease binder absorption, decreasing of manufacturing costs while using more calcium carbonate in the recipes.

Overseperated TURKCARB® grades are class of products group in which surface coating is not feasible due to coarseness of the particle decrease the oil absorption values.

TURKCARB® 5K

TURKCARB® 15K

TURKCARB® 40K

TURKCARB® 60K

TURKCARB® 130K

## HIDING POWER OF TURKCARB® UF

- Saves  $\text{TiO}_2$  by increasing the hiding power.
- High brightness with minimum binder.
- Keeps scrub resistance
- Water based coating, powder coating.



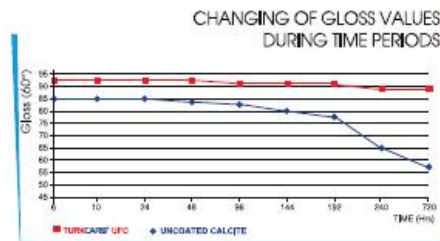
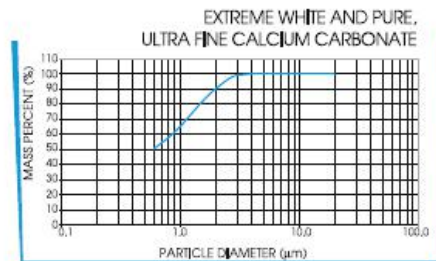
6  $\mu\text{m}$  filling-particle  
-  $\text{TiO}_2$  - particle



2  $\mu\text{m}$  filling-particle  
-  $\text{TiO}_2$  - particle



-  $\text{TiO}_2$  - particle  
- <0,8  $\mu\text{m}$  filling-particle



## GLOSS RETENTION OF TURKCARB® UF Coated

White, Pure and Ultra fine Coated Calcium Carbonate grades will offer superior solutions in solvent based paints.

- High gloss stability
- Low resin absorption
- Saves  $\text{TiO}_2$  and replace precipitated  $\text{BaSO}_4$

ULTRA Fine products will help formulators to save  $\text{TiO}_2$

For Water based systems ;

- Turkcarb® UF
- Turkcarb® 95
- Turkcarb® 75X
- Turkcarb® 100

For Solvent based systems ;

- Turkcarb® UFC
- Turkcarb® 95C
- Turkcarb® 75C
- Turkcarb® 100C

# TiO<sub>2</sub> Saving Technology with UF and UFC grades

## Water Based Semi Gloss Paint study with TURKCARB® UF

| Raw Materials                | Amount (KG)   |               | Price<br>( \$ ) | Cost ( \$ )     |                |
|------------------------------|---------------|---------------|-----------------|-----------------|----------------|
|                              | F. A          | F. B          |                 | F.A             | F. B           |
| Water                        | 16,95         | 14,00         | 0,1             | 1,695           | 1,4            |
| Calgon                       | 0,15          | 0,15          | 0,9             | 0,135           | 0,135          |
| Cellulose (Thickener)        | 0,30          | 0,30          | 6               | 1,8             | 1,8            |
| Ammonia                      | 0,20          | 0,20          | 0,5             | 0,1             | 0,1            |
| Dispersants                  | 0,50          | 0,52          | 3               | 1,5             | 1,56           |
| Antifoam                     | 0,60          | 0,62          | 4               | 2,4             | 2,48           |
| Poliurethane Thickener       | 0,30          | 0,30          | 5               | 1,5             | 1,5            |
| <b>Titandioxide (Rutile)</b> | <b>21,00</b>  | <b>23,00</b>  | <b>4</b>        | <b>84</b>       | <b>92</b>      |
| TURKCARB® UF                 | 11,00         | -             | 0,3             | 3,3             | -              |
| TURKCARB® 1K                 | -             | 5,71          | 0,09            | -               | 0,51           |
| Styrene Acrylics             | 46,00         | 52,00         | 1,2             | 55,2            | 62,4           |
| Anti Freeze                  | 1,00          | 1,00          | 1,5             | 1,5             | 1,5            |
| Texanol                      | 1,80          | 2,00          | 3               | 5,4             | 6              |
| Biocide                      | 0,20          | 0,20          | 4               | 0,8             | 0,8            |
| <b>TOTAL</b>                 | <b>100,00</b> | <b>100,00</b> | <b>TOTAL</b>    | <b>159,33</b>   | <b>172,185</b> |
| <b>Δ Cost /100 kg paint</b>  |               |               |                 | <b>12,85 \$</b> |                |

## Test Results

| Tests                | FORMULA A    | FORMUL B     |
|----------------------|--------------|--------------|
| Viscosity (KU)       | 125-130      | 125-130      |
| Ph                   | 8.50-9.00    | 8.50-9.00    |
| Grinding (μ)         | Max.20       | Max.20       |
| Density (g/ml)       | 1.32 ± 0.02  | 1.25 ± 0.02  |
| Brightness (Gloss)   | 30 ± 2 (60°) | 30 ± 2 (60°) |
| Solid (%)            | 56           | 50           |
| PVC                  | 35           | 33           |
| Hiding power (150 μ) | >99          | >98          |





Saves  $TiO_2$   
Saves alkyd resin  
Low oil absorption  
Longer shelf-life  
Better acid resistance  
Good dispersion properties  
High and long lasting brightness  
Excellent optical effect and opacity

|                      |                           |
|----------------------|---------------------------|
| <b>TURKCARB®</b> UFC | <b>TURKCARB®</b> 1C       |
| <b>TURKCARB®</b> 95C | <b>TURKCARB®</b> 2C       |
| <b>TURKCARB®</b> 75C | <b>TURKCARB®</b> 2KC      |
| <b>TURKCARB®</b> 65C | <b>TURKCARB®</b> 5C       |
|                      | <b>TURKCARB®</b> FILMPLUS |

Saves  $TiO_2$   
High brightness  
Good hiding power  
Sustainable quality control  
Good tinting behaviour with -K grades  
Resistance to pin-holing and mud-cracking  
Low oil absorption properties  
Excellent dispersion properties  
High scrub resistance and matting effect

|                     |                      |
|---------------------|----------------------|
| <b>TURKCARB®</b> UF | <b>TURKCARB®</b> 5   |
| <b>TURKCARB®</b> 95 | <b>TURKCARB®</b> 5K  |
| <b>TURKCARB®</b> 75 | <b>TURKCARB®</b> 10  |
| <b>TURKCARB®</b> 65 | <b>TURKCARB®</b> 15  |
| <b>TURKCARB®</b> 1  | <b>TURKCARB®</b> 15K |
| <b>TURKCARB®</b> 1K | <b>TURKCARB®</b> 20  |
| <b>TURKCARB®</b> 2  | <b>TURKCARB®</b> 40K |
| <b>TURKCARB®</b> 2K | <b>TURKCARB®</b> 60K |



# TURKCARB® COATED PRODUCTS

## Standart Coated Grades

| Product Name              | Packaging              |
|---------------------------|------------------------|
| <b>Turkcarb® UF C</b>     | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 95C</b>      | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 100C</b>     | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® WIN</b>      | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® WINX</b>     | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 1C/1CX</b>   | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 1KC/1KCX</b> | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 2C/2CX</b>   | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 2KC/2KCX</b> | <b>Paper bag,SB,BB</b> |
| <b>Turkcarb® 3C/3CX</b>   | <b>Paper bag,SB,BB</b> |

## Super Coated Grades

| Product Name               |
|----------------------------|
| <b>Turkcarb® FilmPlusX</b> |
| <b>Turkcarb® FP 45X</b>    |
| <b>Turkcarb® FP 40X</b>    |



**TURKCARB®**

## PRODUCT OVERVIEW AND ADVISE TABLE FOR PLASTIC APP.

| PRODUCTS              | PVC PLASTICS        |                       |                        |          | POLYOLEFINS             |               |              |        |                     | OTHER  |           |                      |
|-----------------------|---------------------|-----------------------|------------------------|----------|-------------------------|---------------|--------------|--------|---------------------|--------|-----------|----------------------|
|                       | PVC DOOR<br>PROFILE | SHUTTERS &<br>PANNELS | CABLE & CABLE<br>TRAYS | PVC PIPE | ENGINEERING<br>COMPOUND | FILM COMPOUND | MASTERBATCES | RAFFIA | FURNITURE<br>GARDEN | RUBBER | TPE - TPV | LINOLEUM<br>FLOORING |
| TURKCARB® UFC         | Δ                   | Δ                     | Δ                      |          | Δ                       |               | Δ            |        |                     |        |           |                      |
| TURKCARB® 95C         | Δ                   | Δ                     | Δ                      |          | Δ                       |               | Δ            |        |                     |        |           |                      |
| TURKCARB®<br>WINEXTRA | Δ                   | Δ                     | Δ                      |          | Δ                       |               |              |        |                     | Δ      |           |                      |
| TURKCARB® 100 C       | Δ                   | Δ                     | Δ                      |          |                         | Δ             | Δ            |        |                     |        |           |                      |
| TURKCARB® 65C         |                     | Δ                     | Δ                      |          |                         | Δ             | Δ            |        |                     |        |           |                      |
| TURKCARB® 1C          |                     | Δ                     |                        |          |                         |               | Δ            | Δ      |                     |        |           | Δ                    |
| TURKCARB® FP          |                     | Δ                     | Δ                      |          |                         | Δ             | Δ            | Δ      |                     |        |           |                      |
| TURKCARB® FP45        |                     | Δ                     | Δ                      | Δ        | Δ                       | Δ             | Δ            | Δ      |                     |        |           |                      |
| TURKCARB® 2C          |                     | Δ                     | Δ                      | Δ        | Δ                       | Δ             | Δ            | Δ      |                     |        | Δ         | Δ                    |
| TURKCARB® 2KC         |                     | Δ                     | Δ                      | Δ        | Δ                       | Δ             | Δ            | Δ      |                     | Δ      | Δ         | Δ                    |
| TURKCARB® 5C          |                     |                       |                        | Δ        | Δ                       |               |              |        |                     | Δ      |           | Δ                    |
| TURKCARB® 1           |                     |                       | Δ                      |          | Δ                       |               | Δ            |        |                     |        | Δ         | Δ                    |
| TURKCARB® 2           |                     |                       | Δ                      |          | Δ                       |               | Δ            |        |                     | Δ      | Δ         | Δ                    |
| TURKCARB® 2K          |                     |                       | Δ                      |          | Δ                       |               | Δ            |        |                     | Δ      |           | Δ                    |
| TURKCARB® 5K          |                     |                       | Δ                      |          | Δ                       |               | Δ            |        | Δ                   | Δ      |           | Δ                    |
| TURKCARB® 15          |                     |                       |                        |          | Δ                       |               |              |        | Δ                   |        |           | Δ                    |
| TURKCARB® 15K         |                     |                       |                        |          | Δ                       |               |              |        | Δ                   | Δ      |           | Δ                    |

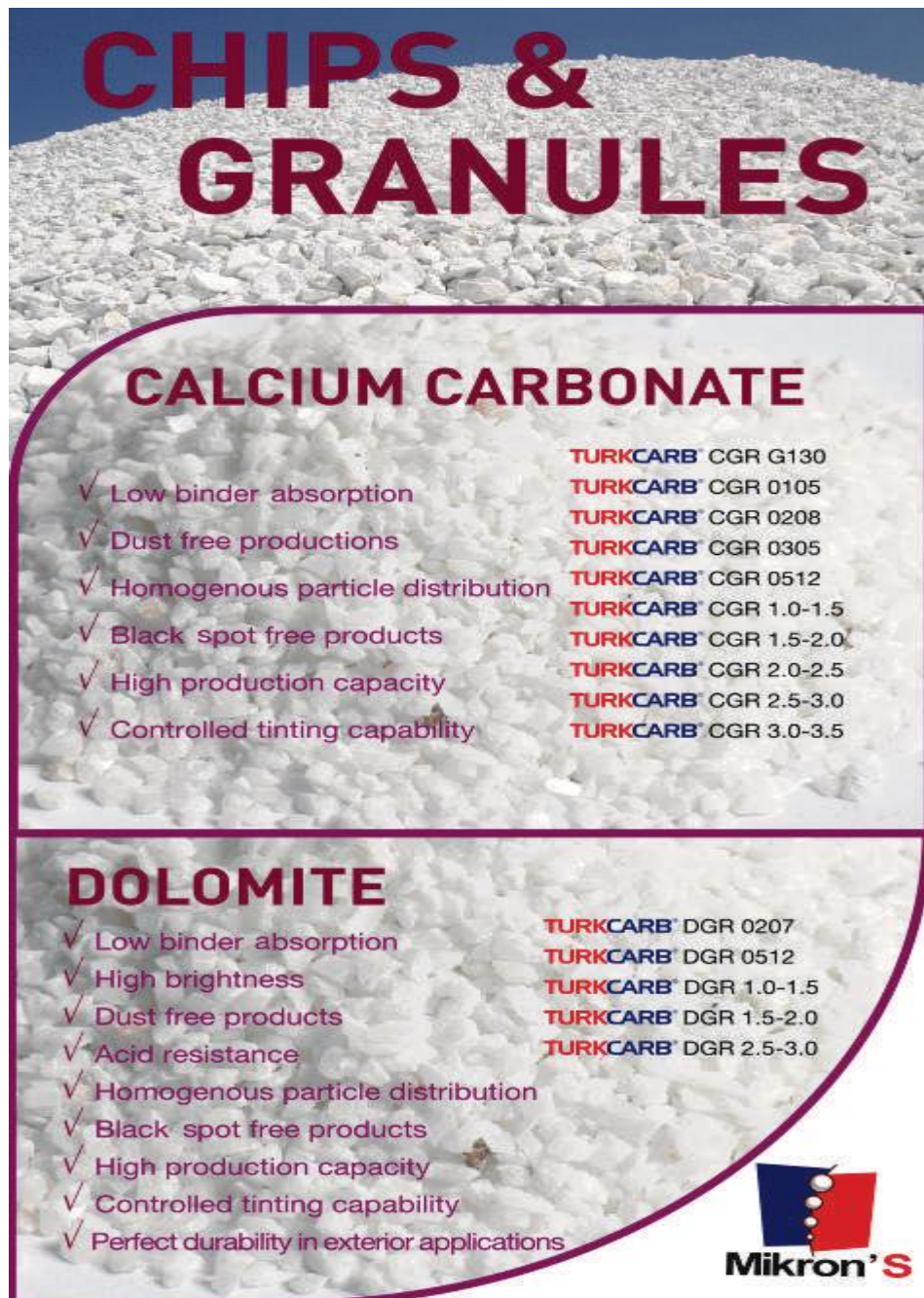
## TURKCARB® GRANULES

MIKRON'S produce the very white TURKCARB® CGR and DGR granules for decorative plasters and other applications.

Our products provide to use wide range application space for example Exterior decorative coatings, textured coatings, decorative plasters.

We have good experience these applications so that we produce what you need.

If you expect to produce good quality products, you should pick the right products that are really suitable particle size distribution.



# CHIPS & GRANULES

## CALCIUM CARBONATE


- ✓ Low binder absorption
- ✓ Dust free productions
- ✓ Homogenous particle distribution
- ✓ Black spot free products
- ✓ High production capacity
- ✓ Controlled tinting capability

- TURKCARB® CGR G130
- TURKCARB® CGR 0105
- TURKCARB® CGR 0208
- TURKCARB® CGR 0305
- TURKCARB® CGR 0512
- TURKCARB® CGR 1.0-1.5
- TURKCARB® CGR 1.5-2.0
- TURKCARB® CGR 2.0-2.5
- TURKCARB® CGR 2.5-3.0
- TURKCARB® CGR 3.0-3.5

## DOLOMITE

- ✓ Low binder absorption
- ✓ High brightness
- ✓ Dust free products
- ✓ Acid resistance
- ✓ Homogenous particle distribution
- ✓ Black spot free products
- ✓ High production capacity
- ✓ Controlled tinting capability
- ✓ Perfect durability in exterior applications

- TURKCARB® DGR 0207
- TURKCARB® DGR 0512
- TURKCARB® DGR 1.0-1.5
- TURKCARB® DGR 1.5-2.0
- TURKCARB® DGR 2.5-3.0



# CHIPS and GRANULE PLANT

## CHIPS & GRANULES

### CALCIUM CARBONATE

- ✓ Low binder absorption
- ✓ Dust free productions
- ✓ Homogenous particle distribution
- ✓ Black spot free products
- ✓ High production capacity
- ✓ Controlled tinting capability

**TURKCARB** CGR G130  
**TURKCARB** CGR 0105  
**TURKCARB** CGR 0208  
**TURKCARB** CGR 0305  
**TURKCARB** CGR 0512  
**TURKCARB** CGR 1.0-1.5  
**TURKCARB** CGR 1.5-2.0  
**TURKCARB** CGR 2.0-2.5  
**TURKCARB** CGR 2.5-3.0  
**TURKCARB** CGR 3.0-3.5



# QUALITY CONTROL



- Particle Distribution is controlled by Retsch online sieve equipments.



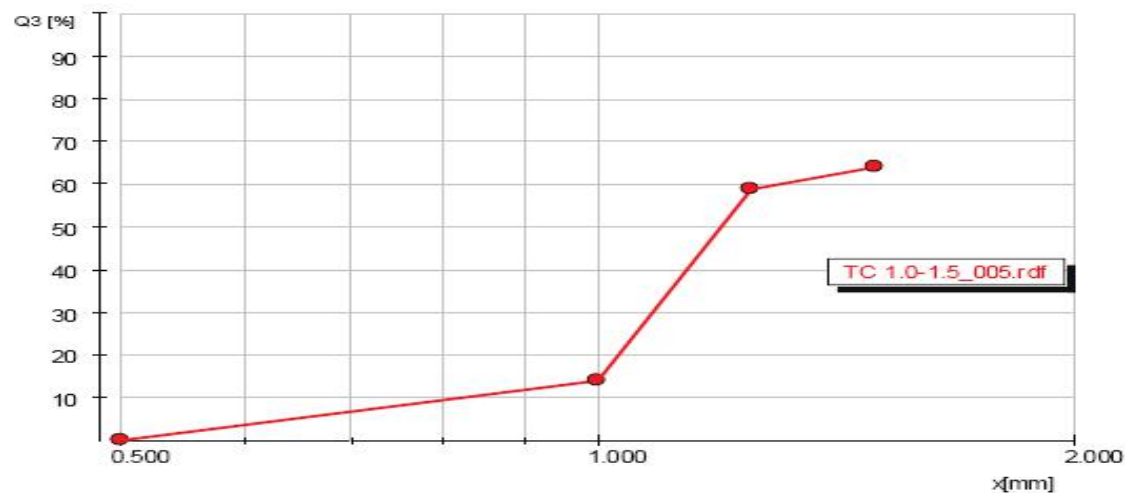


## EasySieve®

**Retsch®**  
Solutions in Milling & Sieving

|                               |   |                               |                 |
|-------------------------------|---|-------------------------------|-----------------|
| Company:                      |   |                               |                 |
| User:                         |   |                               |                 |
| Result file:                  | C:\Program Files\EasySieve\SIEVEDAT\TC 1.0-1.5\TC 1.0-1.5_005.rdf |                               |                 |
| Task file:                    | TC 1.0-1.afq  | Size classes file:            | TC 1.0-1.5      |
| Date:                         | 22. 8.2008 13:39  | Sieving duration [min]:       | 0               |
| Sieve machine:                | AS 200 control  |                               |                 |
| Manuel input                  |   |                               |                 |
| <b>Material:</b>              |   |                               |                 |
| Sample quantity [g]:          | 100.00  | Sum loaded sieve weights [g]: | 99.25           |
| Sieve loss [%]:               | 0.75  |                               |                 |
| Sampling:                     | TC 1.0-1.5  | Sample preparation:           | Drying          |
| Sieve method:                 | dry sieving vertikal  | Sieve diameter:               | 200 x 50 mm     |
| Sieves according to standard: | DIN ISO 3310-2  | Sieving aids:                 | No sieving aids |
| Comment:                      |   |                               |                 |

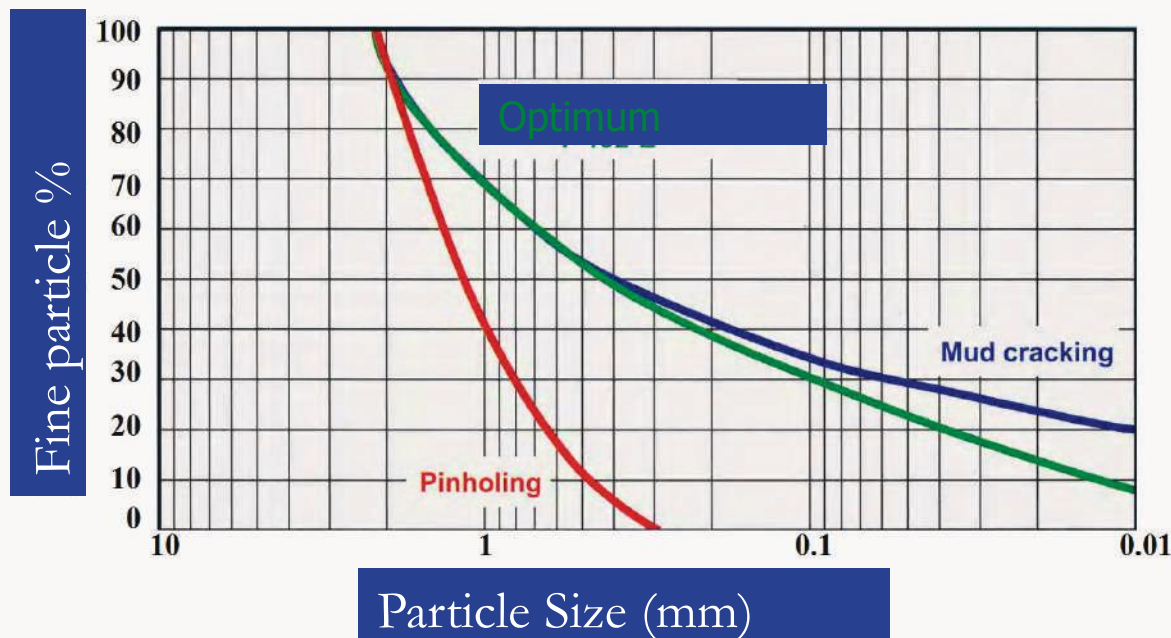
| Size class [mm] | p3 [%] | Q3 [%] |
|-----------------|--------|--------|
| < 0.500         | 0.0    | 0.0    |
| 0.500 - 1.000   | 13.8   | 13.8   |
| 1.000 - 1.250   | 45.0   | 58.9   |
| 1.250 - 1.500   | 5.0    | 63.9   |
| > 1.500         | 36.1   | 100.0  |



Characteristics:

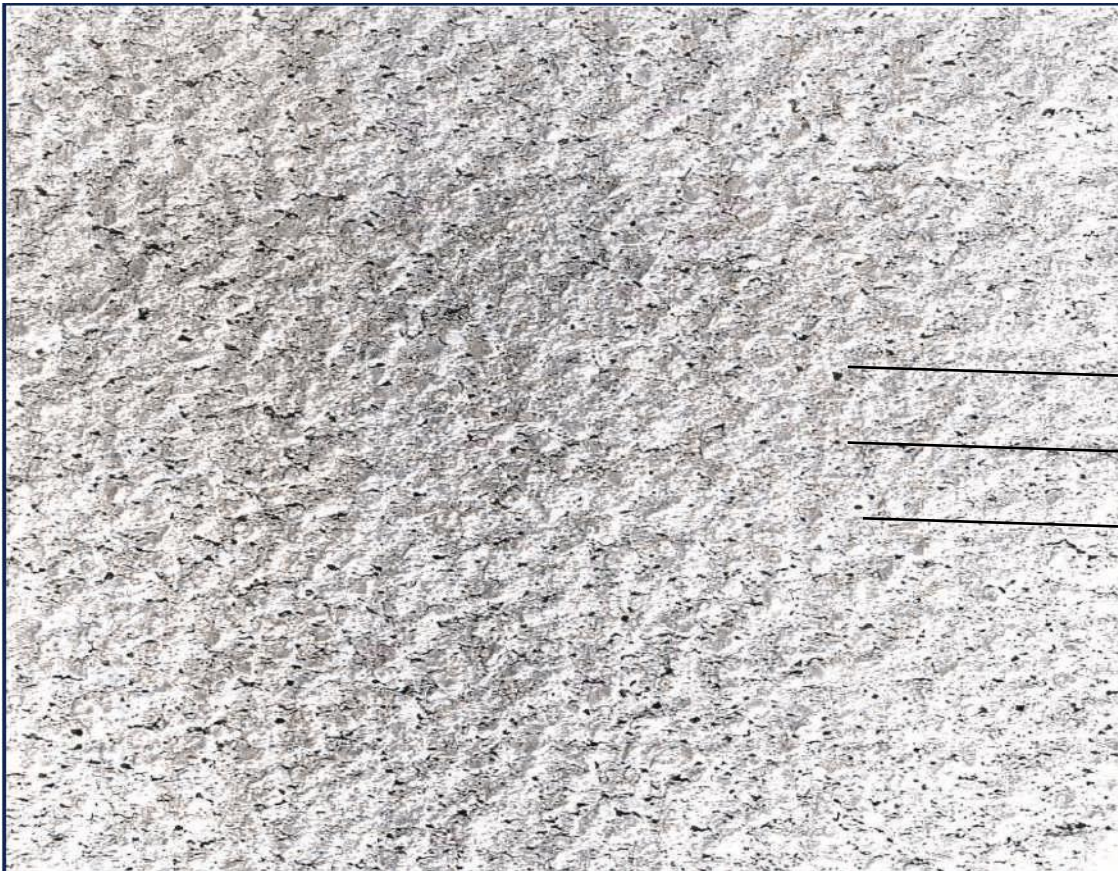
| Q3 [%] | x [mm] |
|--------|--------|
| 10.0   | 0.862  |
| 50.0   | 1.201  |
| 90.0   | 2.042  |

# Selection of right granulometry for textured coatings !





# Pin-Holing



Pin-Holing !

Existence of less fine particles on the surface

# Mud Cracking



-Existence of too much fines called  
**MUD CRACKING**



# Optimum



Optimum particle  
distribution bring  
good result !



## WIDE Chips and Granules Product range , approval from global players !

| Sieve Size | <b>CAROLITH<br/>0,2-0,5 VA</b> | CGR<br>0205H |
|------------|--------------------------------|--------------|
| +500       | MAX 6                          | 0,3          |
| -100       | MAX 5                          | 1,8          |

| Sieve Size | <b>CAROLITH<br/>1,5-2,0VA</b> | CGR<br>1520H |
|------------|-------------------------------|--------------|
| +2000      | MAX 4                         | 4,7          |
| +1400      | MIN 75                        | 89,4         |

| Sieve Size | <b>CAROLITH<br/>0,5-1,0 VA</b> | CGR<br>0510H |
|------------|--------------------------------|--------------|
| +1000      | MAX 3                          | 0            |
| -500       | MAX 25                         | 25,5         |

| Sieve Size | <b>CAROLITH<br/>2,0-2,5 VA</b> | CGR<br>2025H |
|------------|--------------------------------|--------------|
| +2500      | MAX 3                          | 0            |
| -2000      | 20-50                          | 19,7         |

| Sieve Size | <b>CAROLITH<br/>1,0-1,5 VA</b> | CGR<br>1015H |
|------------|--------------------------------|--------------|
| +1400      | MAX 10                         | 10           |
| -1000      | MAX 35                         | 10,7         |

| Sieve Size | <b>OMYACARB<br/>130GU</b> | CGR<br>130H |
|------------|---------------------------|-------------|
| +400       | MAX 0,5                   | 0,1         |
| +100       | >80                       | 98          |



## WIDE Product spectrum , more than 20 grades from Calcium Carbonate and Dolomite !

| Sieve Size | CGR<br>130G | CGR<br>0205 H | CGR<br>0510H | CGR<br>1015H | CGR<br>1520H | CGR<br>2025H |
|------------|-------------|---------------|--------------|--------------|--------------|--------------|
| +1600      |             |               |              | 0            | 40,7         | 98,8         |
| +1000      |             |               | 0            | 88,5         | 58,9         | 0,6          |
| +500       | 0           | 0             | 76           | 10,1         | 0            |              |
| +250       | 54,7        | 54,7          | 23,4         | 0            | 0            |              |
| +125       | 42,7        | 42,7          |              |              |              |              |
| +90        | 0,7         | 0,7           |              |              |              |              |
| Residue    | 2           | 2             | 0,6          | 1,2          | 0,6          | 0,6          |

# NEW CGR **X** Grades from Mugla Plant

*will be the whitest CaCO<sub>3</sub> granules in the region*

| Grade Name<br>(Nigde) | Grade Name<br>(Mugla) |
|-----------------------|-----------------------|
| CGR G130              | CGR G130 <b>X</b>     |
| CGR 0105              | CGR 0105 <b>X</b>     |
| CGR 0512              | CGR 0512 <b>X</b>     |
| CGR 0208              | CGR 0208 <b>X</b>     |
| CGR 1.0-1.5           | CGR 1.0-1.5 <b>X</b>  |
| CGR 1.5-2.0           | CGR 1.5-2.0 <b>X</b>  |
| CGR 2.5-3.0           | CGR 2.5-3.0 <b>X</b>  |



# EXTRAFILL

## NODULAR TALC

Mikron'S Talc products can be classified into two main groups which are NODULAR and LAMELLAR grades in general.

NODULAR grades are typical talc grades for enhancement of matting effect, hiding power and rheology in paint formulations. NODULAR talcs are also very important for food, pharma, cosmetics, rubber and paper applications. NODULAR Talc reserves are very seldom in the World.

- High specific surface area
- Excellent film flexure formation
- Good hiding power
- Improved matting effect
- Non health hazard
- Traces of impurities

Mikron'S Talc 3SX Mikron'S Talc 5SX Mikron'S Talc 5SXP Mikron'S Talc 15SX

Mikron'S Talc 2STD Mikron'S Talc 5STD Mikron'S Talc 20STD



## LAMELLAR TALC

Mikron'S LAMELLAR Talc grades are extremely white with high aspect ratio talc products in general. LAMELLAR grades increase barrier effect of the paint film by increasing hiding power, mud crack and weather resistance.

LAMELLAR Talc grades are White and produced with special grinding technique not to destroy its natural lamellarity.

Mikron'S Talc PREMIER is fine, lamellar talc grade. Normally it is difficult to grind lamellar talcs. Lamellar talc can be micronised without distorting its structure due to advanced technology of Mikron'S.

Mikron'S Talc 10SX Mikron'S Talc PREMIER Mikron'S Talc 20 Mikron'S Talc 15M

Mikron'S Talc 40 Mikron'S Talc 40KN Mikron'S Talc 5XH Mikron'S Talc 3X

Mikron'S Talc 5X Mikron'S Talc 50X Extrafill 5



# BIGGEST TALC MANUFACTURER IN TURKEY !

## -SX Grades

Nodular Grades that saves  $TiO_2$

- Very Good hiding power.
- Not loose matting effect enhances Gloss retention.

## -X Grades

- High Whiteness and Aspect Ratio
- Good Lamellarity that gains matting

## -STD Grades

- Pure ,nodular grey Talcs
- Fine particle size distribution.

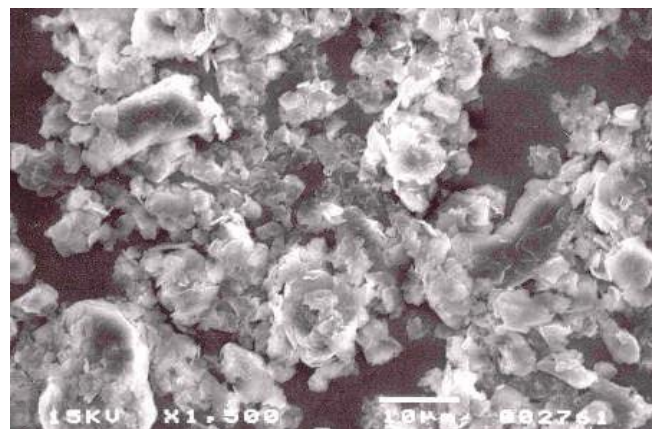
**Mikron'S TALK**

# Nodular Talc

FLEXIBILITY Contributes to  
Product Enhancement

- > High specific surface area
- > Excellent film flexure formation
- > Good hiding power
- > Improved matting effect
- > Non health hazard
- > Traces of impurities

Mikron'S TALK 3SX  
Mikron'S TALK 5SX  
Mikron'S TALK 10SX  
Mikron'S TALK 5STD



**Mikron'S TALK 3SX** **Mikron'S TALK 5SX**

**Mikron'S TALK 10SX** **Mikron'S TALK 5STD**

## General Properties

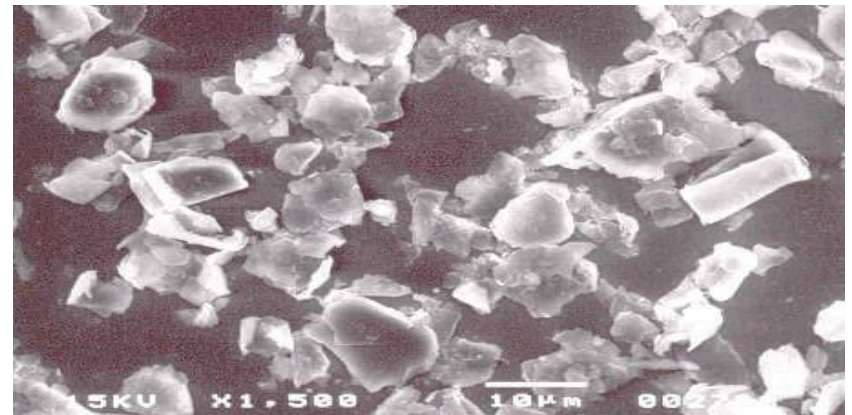
|   |            |
|---|------------|
| Lightness, L* (ASTM E-313) Elrepho 450X min.  | 96,5 %     |
| Brightness, (Ry, DIN 53163) Elrepho 450X min. | 92,5 %     |
| Moisture-Ex.works (ISO 787-2) max.            | 0,3 %      |
| pH (ISO 787-9)                                | 8,5        |
| Oil Absorption (ISO 787-5)                    | 46 g/100 g |
| Packed Bulk Density (ISO 787-11)              | 0,5 g/ml   |



# Lamellar Talc



- > Improved aspect ratio
- > High brightness and whiteness
- > Good hiding power
- > Good sanding effect
- > Improved rheology control
- > Excellent barrier effect



Mikron'S **TALK** 3X   Mikron'S **TALK** 5X  
Mikron'S **TALK** 5XH   Mikron'S **TALK** PREMIER

Mikron'S **TALK** PREMIER

Mikron'S **TALK** 3X

Mikron'S **TALK** 5X

Mikron'S **TALK** 10X

Mikron'S **TALK** 5XH



## General Properties

|   |            |
|---|------------|
| Lightness, L* (ASTM E-313) Elrepho 450X min.  | 97 %       |
| Brightness, (Ry, DIN 53163) Elrepho 450X min. | 93 %       |
| Moisture-Ex.works (ISO 787-2) max.            | 0,3 %      |
| pH (ISO 787-9)                                | 8,5        |
| Oil Absorption (ISO 787-5)                    | 40 g/100 g |
| Packed Bulk Density (ISO 787-11)              | 0,6 g/ml   |



## BARYTE

Barium Sulphate ( $BaSO_4$ )

| TYPICAL PROPERTIES<br>PRODUCT       | BB ULTRA 1 | BB 1 | BB 5 | BB 20 | BB 30 |
|-------------------------------------|------------|------|------|-------|-------|
| Median particle size (d50) - micron | 1,85       | 2    | 3    | 4     | 6     |
| Top Cut (d98) - micron              | 9,5        | 10   | 15   | 21    | 45    |

- Excellent puriness and whiteness
- Resistance against acids
- High density and brightness
- Gains impact properties
- Excellent optical properties
- Good dispersion capability
- Low oil absorption
- Outstanding UV resistance
- Sound Barrier

## DOUBLE EX Baryte

Pure Barium Sulphate products have high density and don't include any heavy metals. Selected Micronised Baryte grades will offer chemical resistance, high hiding power and extra gloss.

BB Ultra 1 Double EX

BB 1 Double EX

BB 5 Double EX

## EX Baryte

Group of products are made from the highest quality White, natural high density barite ore. EX products are not abrasive due to low  $SiO_2$  content. EX barytes have unique properties such as high specific gravity, low solubility and chemical inertness make them indispensable for many applications.

BB Ultra 1 EX

BB 5 EX

BB 30 EX

BB 1 EX

BB 20 EX

## A EX Baryte

Group of products are made from the highest quality white, natural high density barite ore. A EX baryte has lower whiteness value than EX baryte group. A EX products are not abrasive due to low  $SiO_2$  content A EX barytes have unique properties such as high specific gravity, low solubility and chemical inertness make them indispensable for many applications

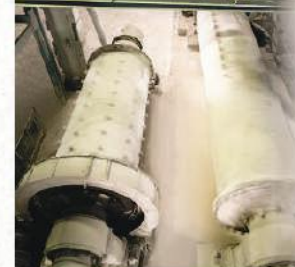
BB Ultra 1A EX

BB 5A EX

BB 30A EX

BB 1A EX

BB 20A EX





## B EX Baryte

Group of products are made from the highest quality white natural high density barite ore.

B EX barite has lower whiteness value than A EX barite group. B EX products are not abrasive due to low  $\text{SiO}_2$  content B EX barytes have unique properties such as high specific gravity, low solubility and chemical inertness make them indispensable for many applications

BB Ultra 1B EX

BB 5B EX

BB 30B EX

BB 1B EX

BB 20B EX

## STD Baryte

Group of products are natural, off-white and high density barytes produced in Şarkikaraağaç - Isparta.

STD products are not abrasive due to low  $\text{SiO}_2$  content, high specific gravity and chemically inert. These specifications provide wide range of usage in various industries.

BB Ultra 1STD

BB 5 STD

BB 25 STD

BB 1 STD

BB 20 STD

BB 30 STD

## STD Natural Baryte

Group of products are natural, off white and hgn density barytes also produced in Şarkikaraağaç, Isparta.

Natural-STD group of products have  $\text{BaSO}_4$  content more than 90% with minimum whiteness (Ry) range 65%

BB Ultra 1STD-NTR

BB 5 STD-NTR

BB 25 STD-NTR

BB 1 STD-NTR

BB 20 STD-NTR

BB 30 STD-NTR



# Mikron'S Mica

Mica is used as a pigment extender that also facilitates suspension, reduces chalking and mud cracking, prevents shrinking and shearing of the paint film, increases resistance of the paint film to water penetration and weathering, and brightens the tone of colored pigments. Mica also promotes paint adhesion in aqueous and oleoresinous formulations. It has high aspect ratio.

## Product Specifications

Natural, Mica powder manufactured from high purity and whiteness Mica mineral.

## Raw Material

Mikron's-Türkey

## General Properties

|  |                         |
|--|-------------------------|
| Density (ISO 787-10)                       | 2,70 gr/cm <sup>3</sup> |
| Hardness                                   | 2,5 Mohs                |
| pH Value (ISO 787-9)                       | 9,5                     |
| Whitness (Ry, DIN 53163) Elrepho 450X min. | 78 %                    |
| Moisture (ISO 787-2) max.                  | 1 %                     |



## Chemical Properties

|                                |        |
|--------------------------------|--------|
| SiO <sub>2</sub>               | 56 %   |
| Al <sub>2</sub> O <sub>3</sub> | 28 %   |
| Fe <sub>2</sub> O <sub>3</sub> | 1,5 %  |
| K <sub>2</sub> O               | 9,04 % |
| MgO                            | 0,8 %  |
| CaO                            | 0,25 % |



## KAOLIN

Natural kaolins also classified in two main groups, primary and secondary as a raw material. Primary kaolins are found naturally where they exist.

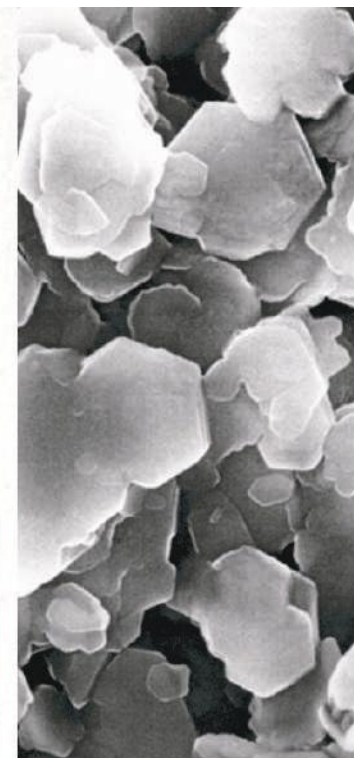
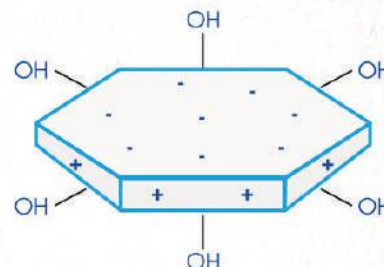
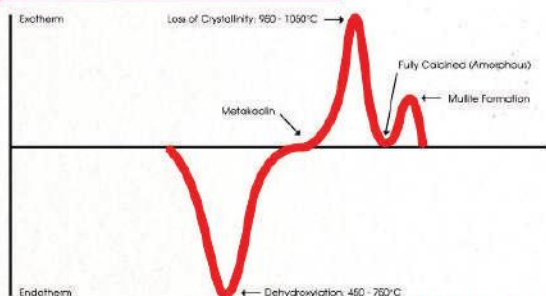
Secondary kaolins are washed and deposited away from primary kaolins. Lower impurities and high brightness are main parameters to differentiate secondary kaolins from primary kaolins.

Selected and washed secondary kaolins are used to produce hydrous kaolins on industrial scale.

Mikron'S Kaolin grades classified into three main group. Ball Kaolins (Clays), Hydrous Kaolins and Calcined Kaolins.

Kaolin [China Clay] is nearly White in colour derived from mineral Kaolinite. Chemical Formula is composed from clusters of  $Al_2O_3 \cdot 2H_2O$ .

### DIFFERENTIAL THERMAL ANALYSIS FOR KAOLIN CALCINATION



|                        |                    |
|------------------------|--------------------|
| Specific Gravity       | 2,6                |
| Aspect Ratio (Average) | 8/1 - 100/1 - 20/1 |
| Refractive Index       | 1,56               |
| MOHS Hardness          | 2,5                |
| Solubility in Water    | NO                 |
| Against Acids          | INERT              |

## BALL CLAYS

Mikron'S Kaolin grades are pure and white ball clays that could be used in many areas like plastics, rubber, paints and coatings. Mikron'S Kaolin grades enhance; opacity, mud crack resistance, scrub resistance, corrosion resistance and resistance to chalking in many paint formulations.

## HYDROUS CLAYS

Mikron'S Hydrous Kaolins widely accepted as a coating clay in paints, thanks to its excellent opacity and hiding power. Hydrous Clays also serves as an extender in coatings and hard clay in rubber systems.

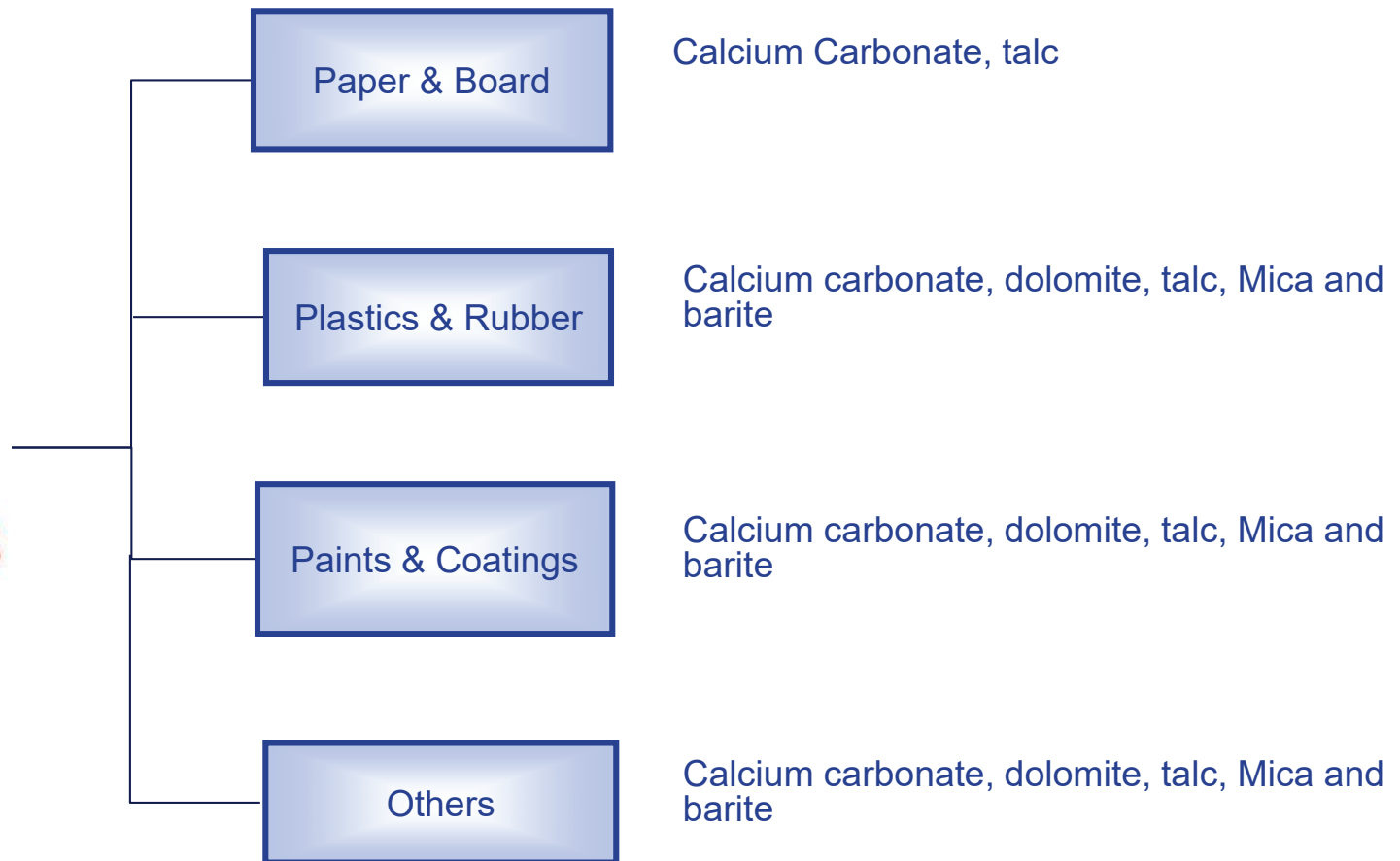
## CALCINED CLAYS

Calcined Clay is formed when kaolin is heated above 980°. It has an amorphous structure with some hydroxyl (-OH) groups at the surface. If heated above 1200°, hard and abrasive mullite is formed. Calcined clay has the highest refractive index after  $TiO_2$  among all industrial minerals that used in manufacturing industries. For this reason, Calcined Clays are widely used to save  $TiO_2$  in paints and coatings.

Mikron'S Calcined Kaolin grades have very fine particle size with extreme whiteness to help users to make optimum formulations.



# Mikron'S



## Our Strengths

- Our core competence is the extraction and processing of industrial minerals, and our understanding of how these minerals can add value to our customers' applications:
- We have
  - European coverage
  - Extensive high quality mineral reserves
  - Unique products and services for our customers
  - Extensive product and applications knowledge supported by technical and R&D skills
  - Very good market understanding



## Export and Logistics

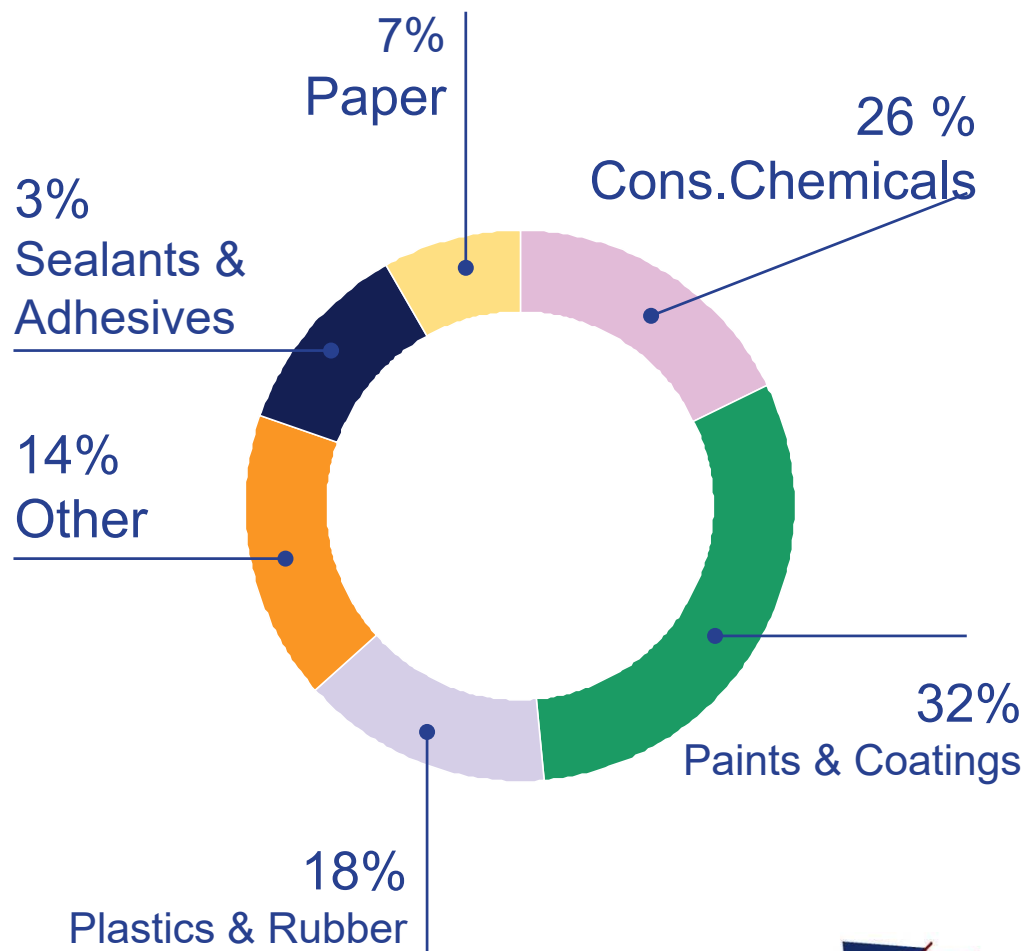


- Active in 13 Countries
- Operates its own conventional ships
- Operates its own trucks
- Even have licence to operate train
- Operates its own loading warehouse in port



## Mikron'S

- Over 500 customers
- Diverse markets
- Complete line of Calcium carbonate, dolomite, Talc, Mica and Barite products.
- Strong player in mineral additives for paint, plastics, and many other markets



## EXPORT VISION





## Mikron'S aim to:

- Develop superior new products for target markets
  - Plastics, film, paint, packaging, paper, rubber, ACS, personal care and other markets
- Expand our mineral and reserve portfolio to exploit our application, processing and customer knowledge.
- Acquire or partner with key companies to accelerate expansion
  - new regions
  - new minerals
  - Increase trade products portfolio to serve customers in systematic approach.

Our plant and control systems are turn key designed, installed and operated by Alpine Hosokawa

- Micronisation systems are controlled by digital PLC systems .
- Key point for successful production is control of the end product during all stages of production

# Technology



# QUALITY CONTROL LABORATORY



Sympatec

- Particle Size Analysers (Sympatec and Malvern), are able to determine particle size distribution parameters which is important to determine product main parameters.

Specific area measurements can also be obtained



Retsch AS 200 Control



Malvern Mastersizer



# QUALITY CONTROL LABORATORY

\* Colour Measurement

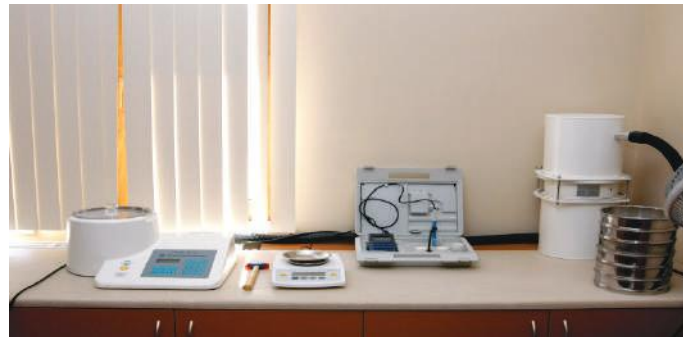


- Colour measurements of end product is made by an equipment called Elrepho 2000
- Elrepho equipment is able to give all colour parameters that's useful for plastic manufacturers.

# QUALITY CONTROL LABORATORY

## Humidity Control

- Regular humidity control is made by lab scale ovens and balances.
- We guarantee to deliver our products less than 0,20 % humidity from our plant.
- Coating quality is being regularly checked in this lab



# QUALITY CONTROL LABORATORY

\* All Chemical Analyses of raw materials and end products are made in own our laboratory .





# PACKING

- \* Chips and Granulates products are packed generally in PP bags BigBags and Sling Bags
- Chips and Granulates pp bags are stacked ,5 bags on each layer in SB's .
- In order to eliminate humidity contamination risk, PE bag is wrapped tightly.



**TURKCARB®**

- Micronised Calcium Carbonate
- Coated Calcium Carbonate
- Modified Calcium Carbonate
- Chips and Granulates
- Micronised Dolomite
- Dolomite chips and granulates

- Barium Sulphate (Baryte)
- Kaolin
- Aluminium Silicates
- Talc
- Mica



Muğla • Niğde



Официальный дистрибьютор компании Mikron'S в Украине: компания ПРОМХИМСНАБ ПЛЮС  
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plastic@noyabr.com.ua

Jeddah



THANK YOU  
FOR  
LISTENING

