

## CATALOGUE OF PRODUCTS

Sklopísek Střeleč, joint stock company produces and supplies high quality glass, foundry, technical, filtration and sport sands, fine milled silica flour.

The Střeleč area represents the largest deposit of prime quality glass sand within the Czech Republic. The sands have been extracted and processed since 1939. The quarry is located 12 kilometres to the northwest of Jičín.

The deposit originated by sediments settling into a relatively shallow, well-aerated sea of the Mesozoic, Cretaceous formation. The deposit is created by sandstones cemented by kaolin with content of  $\text{SiO}_2$  above 98,5 %. The dominant fraction in granularity is 0,10 up to 0,63 mm. The quality of sand is positively affected by very low content of colouring oxides  $\text{Fe}_2\text{O}_3$ ,  $\text{TiO}_2$ ,  $\text{Al}_2\text{O}_3$ . The deposit is being extracted by the open-cast mining in the quarry.

Natural high purity sands from Sklopísek Střeleč are basic raw materials for production of crystal, container and flat glass and glass fibres.

The Střeleč sands have a wide sphere of use in the foundry and building industries. They are a raw material for the production of bonding cements, levelling and joint compounds, special building mortars and plasters. The sands are also used as a filler into the industrial floors because of the compression strength. Further use is for production of glaze and enamels. The chemical purity and favourable particle size distribution of the sand are appreciated in other industrial sectors such as the electrical, ceramic, construction industries, in water treatment and in the production of water glass. Important use is also in blasting and rail transport, as well as the production of garden substrates, construction and maintenance of sport natural and artificial surfaces, it means golf courses, football pitches, tennis courts and multi-sport playing areas.

All produced sands have been exempted from registration requested by REACH Regulation and meet hygienic limits for outside sandpits and playing fields according to the relevant Czech legislation. Above that Technical sands meet legislative requirements for products, which are in touch with potable water and for water treatment.

Bureau Veritas Quality International awarded Sklopísek Střeleč certificate ISO 9001 in 1998 and certificates ISO 14001 and OHSAS 18001 in 2003 and certificate ISO 50001.

## PRODUCTION PROGRAMME

### GLASS SANDS

| Brand Name | Fe <sub>2</sub> O <sub>3</sub> (max %) | Granularity Range (mm) |
|------------|----------------------------------------|------------------------|
| ST 08      | 0,008                                  | 0,10-0,63              |
| ST 10      | 0,010                                  | 0,10-0,63              |
| ST 15      | 0,015                                  | 0,10-0,63              |
| ST 40      | 0,040                                  | 0,10-0,63              |

### GLASS SANDS - FINE

| Brand Name | Fe <sub>2</sub> O <sub>3</sub> (max %) | Granularity Range (mm) |
|------------|----------------------------------------|------------------------|
| STJ 10     | 0,010                                  | 0,063-0,315            |
| STJ 12     | 0,012                                  | 0,063-0,315            |
| STJ 25     | 0,025                                  | 0,063-0,315            |

### FOUNDRY SANDS

| Brand Name | d 50 (mm) | Granularity Range (mm) |
|------------|-----------|------------------------|
| ST 52      | 0,32      | 0,10-0,63              |
| ST 53      | 0,27      | 0,10-0,63              |
| ST 54      | 0,22      | 0,10-0,63              |
| ST 55      | 0,17      | 0,063-0,50             |
| ST 56      | 0,13      | 0,063-0,40             |

### MICRO-MILLED SANDS - SILICA FLOUR

| Brand Name | d 50 (µm) | Granularity Range (mm) |
|------------|-----------|------------------------|
| ST 2       | 27        | 0-0,090                |
| ST 6       | 16        | 0-0,063                |
| ST 7       | 12        | 0-0,045                |
| ST 8       | 9         | 0-0,045                |
| ST 9       | 6         | 0-0,045                |

### TECHNICAL SANDS

| Brand Name |      | Granularity Range (mm) |
|------------|------|------------------------|
| ST 01/06   | 0,36 | 0,10-0,63              |
| ST 02/06   | 0,35 | 0,20-0,63              |
| ST 03/08   | 0,55 | 0,315-0,80             |
| ST 03/30   | 1,0  | 0,315-3,15             |
| ST 05/10   | 0,72 | 0,50-1,00              |
| ST 06/12   | 0,93 | 0,63-1,25              |
| ST 10/40   | 1,99 | 1,00-4,00              |

## OTHER SANDS

| Brand Name | Granularity Range (mm) |
|------------|------------------------|
| ST 92      | 0,063-0,40             |
| ST 93      | 0,30-4,00              |
| ST 96      | 0,10-0,63              |
| ST 97      | 0,10-2,50              |

## SPORT SANDS -

Sands SportTop are suitable for sport surfaces, details in Sport Sands Catalogue.

|  |                          | GLASS SANDS - Company Standard PN-01-2014 (Extract) |         |         |          |         |          |       |           |
|-----------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------|---------|---------|----------|---------|----------|-------|-----------|
|                                                                                   |                          | Table 1. Granularity - Quality Category             |         |         |          |         |          |       |           |
| Brand Name                                                                        | Fraction (mm)            |                                                     |         |         |          |         |          |       |           |
|                                                                                   | above 1,25               | 1,00                                                | 0,80    | 0,63    | 0,50     | 0,315   | 0,10     | 0,063 | undersize |
|                                                                                   | Content of Component (%) |                                                     |         |         |          |         |          |       |           |
| STJ 10                                                                            | 0,00                     |                                                     |         | 0,0     | max 0,5  | max 7,0 | min 90,5 |       | max 2,0   |
| STJ 12                                                                            |                          |                                                     |         |         |          |         |          |       |           |
| STJ 25                                                                            |                          |                                                     |         |         |          |         |          |       |           |
| ST 08                                                                             | 0,00                     |                                                     | 0,0     | max 1,0 | min 97,0 |         | max 2,0  |       |           |
| ST 10                                                                             |                          |                                                     |         |         |          |         |          |       |           |
| ST 12                                                                             |                          |                                                     |         |         |          |         |          |       |           |
| ST 15                                                                             |                          |                                                     |         |         |          |         |          |       |           |
| ST 21                                                                             | 0,00                     | 0,0                                                 | max 5,0 |         | min 93,0 |         |          |       |           |
| ST 25                                                                             | 0,00                     | 0,0                                                 | 0,0     | max 1,0 | min 96,0 |         | max 3,0  |       |           |
| ST 40                                                                             |                          |                                                     |         | max 0,5 | min 94,5 |         | max 5,0  |       |           |

|                                                                                    |                                                     |                          |                                |                  |                                |
|------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------|--------------------------------|------------------|--------------------------------|
|  | GLASS SANDS - Company Standard PN-01-2014 (Extract) |                          |                                |                  |                                |
|                                                                                    | Table 2. Chemical Composition                       |                          |                                |                  |                                |
|                                                                                    | Brand Name                                          | Content of Component (%) |                                |                  |                                |
|                                                                                    |                                                     | SiO <sub>2</sub>         | Fe <sub>2</sub> O <sub>3</sub> | TiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> |
|                                                                                    | min                                                 | max                      |                                |                  |                                |
| STJ 10                                                                             | 99,7                                                | 0,010                    | 0,03                           | 0,2              |                                |
| STJ 12                                                                             |                                                     | 0,012                    | 0,04                           |                  |                                |
| STJ 25                                                                             | 99,3                                                | 0,025                    | 0,15                           | 0,3              |                                |
| ST 08                                                                              | 99,7                                                | 0,008                    | 0,03                           | 0,2              |                                |
| ST 10                                                                              |                                                     | 0,010                    |                                |                  |                                |
| ST 12                                                                              |                                                     | 0,012                    | 0,04                           |                  |                                |
| ST 15                                                                              | 99,5                                                | 0,015                    | 0,05                           |                  |                                |
| ST 21                                                                              | 99,3                                                | 0,021                    | 0,10                           |                  |                                |
| ST 25                                                                              |                                                     | 0,025                    | 0,13                           | 0,3              |                                |
| ST 40                                                                              | 98,5                                                | 0,040                    |                                |                  | 0,4                            |

|                                                                                     |                                                                                           |         |         |         |         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------|---------|---------|---------|
|  | FOUNDRY SANDS - Company Standard PN-02-2014 (Extract)<br><i>Table 1. Quality Category</i> |         |         |         |         |
| Basic Characteristics                                                               | Brand Name                                                                                |         |         |         |         |
|                                                                                     | ST 52                                                                                     | ST 53   | ST 54   | ST 55   | ST 56   |
| d 50 (mm)                                                                           | 0,32                                                                                      | 0,27    | 0,22    | 0,17    | 0,14    |
| Granularity Range (mm)                                                              | ±0,03                                                                                     | ±0,03   | ±0,03   | ±0,03   | ±0,03   |
| (d 75 : d 25) x 100                                                                 | 40 - 65                                                                                   | 40 - 65 | 40 - 65 | 45 - 65 | 40 - 60 |
| Washed matter (%) max                                                               | 1                                                                                         |         |         | 2       |         |
| Fe <sub>2</sub> O <sub>3</sub> (%) max                                              | 0,2                                                                                       |         |         | 0,3     |         |
| K <sub>2</sub> O + Na <sub>2</sub> O (%) max                                        | 0,2                                                                                       |         |         |         |         |
| CaO + MgO (%) max                                                                   | 0,2                                                                                       |         |         | 0,4     |         |

|  |     | MICRO-MILLED SANDS - Company Standard PN-03-2014 (Extract) |          |         |         |         |  |
|-----------------------------------------------------------------------------------|-----|------------------------------------------------------------|----------|---------|---------|---------|--|
|                                                                                   |     | Table 1. Granularity and Chemical Composition              |          |         |         |         |  |
|                                                                                   |     | Brand Name                                                 |          |         |         |         |  |
| Fraction (mm)                                                                     |     | ST 2                                                       | ST 6     | ST 7    | ST 8    | ST 9    |  |
|                                                                                   |     | Fraction (%)                                               |          |         |         |         |  |
| above 0,50                                                                        |     | 0,00                                                       | 0,0      | 0,0     | 0,0     | max 0,5 |  |
| 0,315                                                                             |     | 0,0                                                        |          |         |         |         |  |
| 0,25                                                                              |     | max 0,5                                                    |          |         |         |         |  |
| 0,20                                                                              |     |                                                            |          |         |         |         |  |
| 0,125                                                                             |     | max 8,0                                                    | max 10,0 | max 5,0 | max 0,9 | max 0,5 |  |
| 0,090                                                                             |     |                                                            |          |         |         |         |  |
| 0,063                                                                             |     | max 20,0                                                   |          |         |         |         |  |
| 0,045                                                                             |     | not specified                                              |          |         |         |         |  |
| 0,040                                                                             |     |                                                            |          |         |         |         |  |
| undersize                                                                         |     |                                                            |          |         |         |         |  |
| SiO <sub>2</sub> (%)                                                              | min | 99,6                                                       |          |         |         |         |  |
| Fe <sub>2</sub> O <sub>3</sub> (%)                                                | max | 0,05                                                       |          |         |         |         |  |
| Al <sub>2</sub> O <sub>3</sub> (%)                                                | max | 0,5                                                        |          |         |         |         |  |
| CaO + MgO (%)                                                                     | max | 0,1                                                        |          |         |         |         |  |
| Na <sub>2</sub> O + K <sub>2</sub> O (%)                                          | max | 0,1                                                        |          |         |         |         |  |

|  |          | TECHNICAL SANDS - Company Standard PN-04-2017 (Extract) |          |          |          |           |          |          |  |  |
|-------------------------------------------------------------------------------------|----------|---------------------------------------------------------|----------|----------|----------|-----------|----------|----------|--|--|
|                                                                                     |          | Table 1. Quality Category                               |          |          |          |           |          |          |  |  |
|                                                                                     |          | Brand Name                                              |          |          |          |           |          |          |  |  |
| Fraction (mm)                                                                       | ST 01/06 | ST 02/06                                                | ST 03/08 | ST 03/30 | ST 05/10 | STF 06/12 | ST 06/12 | ST 10/40 |  |  |
|                                                                                     |          | Fraction (%)                                            |          |          |          |           |          |          |  |  |
| above 4,0                                                                           | max 15,0 | max 2,2                                                 | max 10,0 | max 3,0  | 0,00     | max 10,0  | max 10,0 | max 5,0  |  |  |
| 3,15                                                                                |          |                                                         |          |          |          |           |          | min 90,0 |  |  |
| 1,25                                                                                |          |                                                         |          |          |          |           |          |          |  |  |
| 1,00                                                                                |          |                                                         | min 92,0 |          | max 10,0 | min 85,0  | min 80,0 | max 5,0  |  |  |
| 0,80                                                                                |          |                                                         |          |          |          |           |          |          |  |  |
| 0,63                                                                                | min 83,0 | min 95,3                                                | min 85,0 |          | min 85,0 | min 85,0  | min 80,0 |          |  |  |
| 0,50                                                                                |          |                                                         |          |          |          |           |          |          |  |  |
| 0,315                                                                               |          |                                                         | max 5,0  | max 5,0  | max 5,0  |           | max 10,0 |          |  |  |
| 0,20                                                                                |          |                                                         |          |          |          |           |          |          |  |  |
| 0,10                                                                                |          |                                                         |          |          |          |           |          |          |  |  |
| undersize                                                                           | max 2,0  | max 2,5                                                 | max 5,0  | max 5,0  |          |           |          |          |  |  |
| SiO <sub>2</sub> (%) min                                                            | 99,2     |                                                         |          |          |          |           |          |          |  |  |
| Fe <sub>2</sub> O <sub>3</sub> (%) max                                              | 0,04     |                                                         |          |          | 0,10     |           |          |          |  |  |
| washed matter (%) max                                                               | 1        |                                                         |          |          |          |           |          |          |  |  |

## GLASS SANDS

Sands with extremely high content of SiO<sub>2</sub> are an exclusive raw material for the glass industry, for the silicate chemistry products and for a wide range of use in other industrial areas. The sands are being sold wet or dried, in bulk or in bags, transported on trucks or wagons.

### GRANULARITY AND OTHER CHARACTERISTICS

|                         | ST 08 | ST 10 | ST 15 | ST 40     | Method    |
|-------------------------|-------|-------|-------|-----------|-----------|
| Middle Grain Size (d50) | 0,31  | 0,31  | 0,30  | 0,24 mm   | screening |
| AFS                     | 44    | 44    | 43    | 62        | screening |
| Bulk Weight             | 1,43  | 1,43  | 1,46  | 1,48 kg/l |           |
| > 800 µm                |       |       |       | %         | screening |
| > 630 µm                | 0,1   | 0,1   | 0,2   | 0,20 %    | screening |
| > 500 µm                | 1     | 1,5   | 2,4   | 1,7 %     | screening |
| > 400 µm                | 8     | 10    | 12,7  | 5,7 %     | screening |
| > 315 µm                | 38,7  | 36    | 36    | 14,4 %    | screening |
| > 200 µm                | 49,6  | 48    | 44,4  | 40,3 %    | screening |
| > 100 µm                | 2,5   | 4,3   | 4,2   | 36 %      | screening |
| < 100 µm                | 0,1   | 0,1   | 0,1   | 1,7 %     | screening |

### CHEMICAL ANALYSIS (RFA) %

|                                | ST 08 | ST 10 | ST 15 | ST 40 |
|--------------------------------|-------|-------|-------|-------|
| SiO <sub>2</sub>               | 99,7  | 99,85 | 99,8  | 99,7  |
| Fe <sub>2</sub> O <sub>3</sub> | 0,008 | 0,010 | 0,015 | 0,040 |
| Al <sub>2</sub> O <sub>3</sub> | 0,10  | 0,10  | 0,2   | 0,3   |
| TiO <sub>2</sub>               | 0,02  | 0,02  | 0,05  | 0,13  |

### PHYSICAL CHARACTERISTICS

|                       |             |                             |         |
|-----------------------|-------------|-----------------------------|---------|
| Density (g/ml)        | 2,65        | Humidity in a wet state (%) | 8,0 max |
| Hardness, Mohs        | 7           | Humidity in a dry state (%) | 0,2 max |
| Loss by annealing (%) | 0,08 - 0,25 | pH                          | 7,3     |

Střeleč silica sands are improved natural raw materials. The above-mentioned information is based on average values. The data should be considered as indicative. Occurrence of coarser or finer fractions in trace quantities is possible. The user should test the product and consider, whether it is suitable for the desired purpose. On the customer's request we can discuss the tolerances of the products data. Sale and delivery is always based on agreed commercial conditions and relevant company standard or a quality agreement.

## GLASS SANDS - FINE

Sands with extremely high content of SiO<sub>2</sub> are an exclusive raw material for the glass industry and a wide range of use in other areas. The sands are being sold wet or dried, in bulk or in bags, transported on trucks or wagons.

### GRANULARITY AND OTHER CHARACTERISTICS

|                         | STJ 10 | STJ 12 | STJ 25 |      | Method    |
|-------------------------|--------|--------|--------|------|-----------|
| Middle Grain Size (d50) | 0,21   | 0,20   | 0,18   | mm   | screening |
| AFS                     | 67     | 70     | 75     |      | screening |
| Bulk Weight             | 1,41   | 1,41   | 1,41   | kg/l |           |
| > 800 µm                |        |        |        | %    | screening |
| > 630 µm                |        |        |        | %    | screening |
| > 500 µm                |        |        |        | %    | screening |
| > 400 µm                | 0,5    | 0,4    | 0,15   | %    | screening |
| > 315 µm                | 4      | 4      | 2      | %    | screening |
| > 200 µm                | 50     | 45,3   | 37,45  | %    | screening |
| > 100 µm                | 43     | 48     | 56,4   | %    | screening |
| > 63 µm                 | 2      | 2      | 3,5    | %    | screening |
| < 63 µm                 | 0,5    | 0,3    | 0,5    | %    | screening |

### CHEMICAL ANALYSIS (RFA) %

|                                | STJ 10 | STJ 12 | STJ 25 |
|--------------------------------|--------|--------|--------|
| SiO <sub>2</sub>               | 99,7   | 99,7   | 99,3   |
| Fe <sub>2</sub> O <sub>3</sub> | 0,010  | 0,012  | 0,025  |
| Al <sub>2</sub> O <sub>3</sub> | 0,1    | 0,15   | 0,3    |
| TiO <sub>2</sub>               | 0,03   | 0,03   | 0,15   |

### PHYSICAL CHARACTERISTICS

|                       |             |                             |         |
|-----------------------|-------------|-----------------------------|---------|
| Density (g/ml)        | 2,65        | Humidity in a wet state (%) | 8,0 max |
| Hardness, Mohs        | 7           | Humidity in a dry state (%) | 0,2 max |
| Loss by annealing (%) | 0,06 - 0,25 | pH                          | 7,3     |

Střeleč silica sands are improved natural raw materials. The above-mentioned information is based on average values. The data should be considered as indicative. Occurrence of coarser or finer fractions in trace quantities is possible. The user should test the product and consider, whether it is suitable for the desired purpose. On the customer's request we can discuss the tolerances of the products data. Sale and delivery is always based on agreed commercial conditions and relevant company standard or a quality agreement.

## FOUNDRY SANDS

Sands with high content of  $\text{SiO}_2$  and favourable granularity are an exclusive raw material in the foundry industry for the sand casting and for production of sand core. Foundry sands are widely used in the building chemistry for production of bonding cements, levelling and joint compounds, special building mortars and plasters. Furthermore these sands are used for the natural lawn aeration. The sands are being sold wet or dried, in bulk or in bags, transported on trucks or wagons.

### GRANULARITY, PHYSICAL AND OTHER CHARACTERISTICS

|                         | ST 52 | ST 53 | ST 54 | ST 55 | ST 56 |      | Method    |
|-------------------------|-------|-------|-------|-------|-------|------|-----------|
| Middle Grain Size (d50) | 0,32  | 0,27  | 0,22  | 0,17  | 0,13  | mm   | screening |
| Begining of sintering   | 1550  | 1550  | 1550  | 1550  | 1550  | °C   |           |
| PH                      | 7     | 7,5   | 7,4   | 7,8   | 7,5   |      |           |
| AFS                     | 48    | 54    | 66    | 90    | 122   |      | screening |
| Washed matter           | 0,14  | 0,12  | 0,06  | 0,15  | 0,22  | %    |           |
| Loss by annealing       | 0,11  | 0,22  | 0,22  | 0,25  | 0,26  | %    |           |
| Bulk Weight             | 1,48  | 1,48  | 1,47  | 1,48  | 1,48  | kg/l |           |
| > 1000 $\mu\text{m}$    |       |       |       |       |       | %    | screening |
| > 1000 $\mu\text{m}$    |       |       |       |       |       | %    | screening |
| > 1000 $\mu\text{m}$    |       |       |       |       |       | %    | screening |
| > 1000 $\mu\text{m}$    |       |       |       |       |       | %    | screening |
| > 630 $\mu\text{m}$     | 0,7   | 0,20  | 0,15  |       |       | %    | screening |
| > 500 $\mu\text{m}$     | 5     | 1,8   | 1     | 0,5   | 1     | %    | screening |
| > 400 $\mu\text{m}$     | 16,8  | 7,3   | 3,5   | 1     | 1     | %    | screening |
| > 315 $\mu\text{m}$     | 28    | 24    | 11    | 3,7   | 2,5   | %    | screening |
| > 200 $\mu\text{m}$     | 35    | 46,4  | 41,35 | 30,6  | 11,5  | %    | screening |
| > 100 $\mu\text{m}$     | 13    | 19,3  | 41    | 50,2  | 50    | %    | screening |
| > 63 $\mu\text{m}$      | 1,50  | 1,00  | 2,00  | 11    | 26    | %    | screening |
| < 63 $\mu\text{m}$      |       |       |       | 3     | 8     | %    | screening |

### CHEMICAL ANALYSIS (RFA) %

|                                            | ST 52 | ST 53 | ST 54 | ST 55 | ST 56 |
|--------------------------------------------|-------|-------|-------|-------|-------|
| $\text{SiO}_2$                             | 99,3  | 99,2  | 99,2  | 99,0  | 99,0  |
| $\text{Fe}_2\text{O}_3$                    | 0,04  | 0,04  | 0,04  | 0,07  | 0,09  |
| $\text{K}_2\text{O} + \text{Na}_2\text{O}$ | 0,1   | 0,1   | 0,1   | 0,1   | 0,2   |
| $\text{CaO} + \text{MgO}$                  | 0,1   | 0,1   | 0,1   | 0,1   | 0,2   |

  

|                |      |                             |         |
|----------------|------|-----------------------------|---------|
| Density (g/ml) | 2,65 | Humidity in a wet state (%) | 8,0 max |
| Hardness, Mohs | 7    | Humidity in a dry state (%) | 0,2 max |

Střeleč silica sands are improved natural raw materials. The above-mentioned information is based on average values. The data should be considered as indicative. Occurrence of coarser or finer fractions in trace quantities is possible. The user should test the product and consider, whether it is suitable for the desired purpose. On the customer's request we can discuss the tolerances of the products data. Sale and delivery is always based on agreed commercial conditions and relevant company standard or a quality agreement.

## TECHNICAL SANDS

Sands with extremely high content of  $\text{SiO}_2$  are an exclusive raw material at water treatment for filtration of drinkable and technological water and for a wide range of use in the construction, for the investment casting technology. These sands are also used in the building industry as filler into the industrial floors and for the sand blasting of the concrete and steel constructions. Furthermore the technical sands are used for the artificial sports grass backfilling. Technical sand with low content of  $\text{Fe}_2\text{O}_3$  is an exclusive raw material for the electro-technical industry as an extinguisher for high-voltage fuses, as a filling and insulating material for electrical heating bodies and for other wide ranges of use. The sands are being sold dried, in bulk or in bags, transported on trucks or wagons.

### GRANULARITY AND OTHER CHARACTERISTICS

| ST 01/06                |      | ST 02/06  | ST 03/08 | ST 03/30 | ST 05/10 | ST 06/12 | ST 10/40  | Method    |           |
|-------------------------|------|-----------|----------|----------|----------|----------|-----------|-----------|-----------|
| Middle Grain Size (d50) | 0,36 | 0,35      | 0,55     | 1,0      | 0,72     | 0,93     | 1,99      | mm        | screening |
| AFS                     | 34   | 32        | 23       | 8        | 17       | 15       | 5         |           | screening |
| Bulk Weight             | 1,52 | 1,5       | 1,5      | 1,5      | 1,5      | 1,52     | 1,55      | kg/l      |           |
| > 4000 μm               | 0    | 0         | 0        | 0,1      | 0        | 5        | 0         | %         | screening |
| > 3150 μm               |      |           |          |          |          |          | 99        | %         | screening |
| > 1250 μm               |      |           | 5,5      | 99,2     | 6        | 93       |           | 1         | %         |
| > 1000 μm               |      |           |          |          | 93       |          | %         |           | screening |
| > 800 μm                | 7,3  | 0,1       | 93,2     | 93       |          | %        | screening |           |           |
| > 630 μm                |      |           |          |          | 90,5     | 99       | 93,2      |           | 1         |
| > 500 μm                | %    | screening |          |          |          |          |           |           |           |
| > 315 μm                | %    | screening |          |          |          |          |           |           |           |
| > 200 μm                | 2    | 0,9       | 1,3      | 0,7      | 1        | 2        | %         |           | screening |
| > 100 μm                |      |           |          |          |          |          | %         | screening |           |
| < 100 μm                | 0,2  |           |          |          |          |          |           | %         | screening |

### CHEMICAL ANALYSIS (RFA) %

|                         | ST 01/06 | ST 02/06 | ST 03/08 | ST 03/30 | ST 05/10 | ST 06/12 | ST 10/40 |
|-------------------------|----------|----------|----------|----------|----------|----------|----------|
| $\text{SiO}_2$          | 99,2     | 99,4     | 99,4     | 99,2     | 99,85    | 99,2     | 99,2     |
| $\text{Fe}_2\text{O}_3$ | 0,04     | 0,04     | 0,04     | 0,1      | 0,022    | 0,03     | 0,03     |

### PHYSICAL CHARACTERISTICS

|                       |           |              |         |
|-----------------------|-----------|--------------|---------|
| Density (g/ml)        | 2,65      | Humidity (%) | 0,2 max |
| Hardness, Mohs        | 7         | pH           | 7,2     |
| Loss by annealing (%) | 0,1 - 0,3 |              |         |

Střeleč silica sands are improved natural raw materials. The above-mentioned information is based on average values. The data should be considered as indicative. Occurrence of coarser or finer fractions in trace quantities is possible. The user should test the product and consider, whether it is suitable for the desired purpose. On the customer's request we can discuss the tolerances of the products data. Sale and delivery is always based on agreed commercial conditions and relevant company standard or a quality agreement.

## MICRO-MILLED SANDS

The micro-milled sands – silica flour are produced by milling in a ironless environment, by classification with use of air separators. The raw material used for the production of micro-milled sands – silica flour is treated silica sand with SiO<sub>2</sub> content above 99 %. The chemical purity, favourable particle size distribution, chemical inertia and hardness of micro-milled sands – silica flour is appreciated in the production of glass fibres, ceramic enamels, glazes, as a filler in plastics, in the production of special mortar mixtures, tile adhesives and in the foundry industry for the production of moulds. The sands are being sold dried, in bulk or in bags, transported on trucks or wagons.

### GRANULARITY AND OTHER CHARACTERISTICS

|                         | ST 2 | ST 6 | ST 7 | ST 8 | ST 9 |                    | Method    |
|-------------------------|------|------|------|------|------|--------------------|-----------|
| Middle Grain Size (d50) | 27   | 16   | 12   | 9    | 6    | µm                 | laser     |
| Grain Surface           | 3274 | 4379 | 5407 | 6122 | 8592 | cm <sup>2</sup> /g | laser     |
| Oil-absorption no.      | 33,9 | 36,2 | 37,1 | 39,1 | 40,5 | ml/100g            |           |
| Bulk Weight             | 1,19 | 0,99 | 0,99 | 0,93 | 0,92 | kg/l               |           |
| > 90 µm                 | 4,6  |      |      |      |      | %                  | screening |
| > 63 µm                 | 14,2 |      |      |      |      | %                  | screening |
| > 45 µm                 |      | 5,3  | 4,6  | 0,3  | 0,23 | %                  | screening |
| > 40 µm                 | 18   |      |      |      |      | %                  | screening |
| > 45 µm                 | 31   | 10   | 4,5  | 0,7  | 0,2  | %                  | laser     |
| > 40 µm                 | 35   | 15   | 9    | 2    | 0,6  | %                  | laser     |
| > 32 µm                 | 44   | 23   | 17   | 7    | 2    | %                  | laser     |
| > 20 µm                 | 58   | 43   | 33   | 22   | 10   | %                  | laser     |
| > 15 µm                 | 66   | 52   | 43   | 33   | 17   | %                  | laser     |
| > 10 µm                 | 73   | 63   | 57   | 48   | 29   | %                  | laser     |
| > 5 µm                  | 83   | 76   | 69   | 64   | 46   | %                  | laser     |
| > 2 µm                  | 93   | 90   | 83   | 79   | 71   | %                  | laser     |
| > 1 µm                  | 97   | 96   | 95   | 95   | 93   | %                  | laser     |

### CHEMICAL ANALYSIS (RFA) %

|                                      |      |
|--------------------------------------|------|
| SiO <sub>2</sub>                     | 99,6 |
| Fe <sub>2</sub> O <sub>3</sub>       | 0,05 |
| Al <sub>2</sub> O <sub>3</sub>       | 0,2  |
| CaO + MgO                            | 0,1  |
| Na <sub>2</sub> O + K <sub>2</sub> O | 0,1  |

### PHYSICAL CHARACTERISTICS

|                       |      |              |         |
|-----------------------|------|--------------|---------|
| Density (g/ml)        | 2,65 | Humidity (%) | 0,2 max |
| Hardness, Mohs        | 7    | pH           | 6,4     |
| Loss by annealing (%) | 0,2  |              |         |

Střeleč silica sands are improved natural raw materials. The above-mentioned information is based on average values. The data should be considered as indicative. Occurrence of coarser or finer fractions in trace quantities is possible. The user should test the product and consider, whether it is suitable for the desired purpose. On the customer's request we can discuss the tolerances of the products data. Sale and delivery is always based on agreed commercial conditions and relevant company standard or a quality agreement.

## OTHER SANDS

### ST 92

Fine sand, product of a silica raw material wet treatment. Granularity and chemical content are not guaranteed. Main fractions are 0,063 – 0,4 mm and represent 80% of the weight. Sand humidity at the delivery is up to 8%. It is suitable for technical purposes. It's suitable first of all for horse ridding sports.

### ST 93

Coarse sand, product of a silica raw material wet treatment. Granularity and chemical content are not guaranteed. Main fractions are 0,30 – 4,00 mm and represent 70% of the weight. Sand humidity at the delivery is up to 8%. It is suitable for technical purposes.

### ST 96

Medium coarse sand, product of a silica raw material wet treatment. Granularity and chemical content are not guaranteed. Main fractions are 0,10 – 0,63 mm. It can contain some amount of sandstone clots. Sand humidity at the delivery is up to 8%. It is suitable for technical and sport purposes.

### ST 97

Natural sand. Granularity and chemical content are not guaranteed. Main fractions are 0,1 – 2,5 mm and represent 70% of the weight. It can contain some amount of sandstone clots. Sand humidity at the delivery is up to 8%. It is suitable for technical purposes.

Above mentioned data are only indicative.

## SPORT SANDS -

Sands SportTop are suitable for sport surfaces, details in Sport Sands Catalogue.