



# ForeSphere<sup>®</sup>

Glass microsphere

## Fores Company —

The largest Russian manufacturer of proppants

**12**

FORES company group comprises 12 enterprises

**2015**

In 2015 in Sverdlovsk region we built a factory for hollow glass microsphere production based on our unique technology that meets all-Russian and international standards

**2000**

Founded in 2000

Among our clients there are both major Russian oil companies and western oilfield service companies

# Advantages

## **Ideal spherical shape and homogeneous substance**

Spherical shape generally decreases viscosity, so it allows the material to spread well and create perfect even surfaces. Spherical fillers consume minimal amount of binding agents in contrast to condensers of any other shape. All that provides for cost-effectiveness. Moreover, microsphere has small shrinkage strain in comparison to fillers of other shapes.

## **Low heat and sound conduction**

Glass microsphere ForeSphere has good insulating properties that enable to create sound- and heat-insulating materials, light and heat-reflecting coatings.

## **Chemically stable glass**

Glass microsphere ForeSphere — resistant and predictable material. Designed specifically at our research center Fores. Glass doesn't impact chemical composition and reactive properties of blends, in which microspheres are used as fillers.

## **Transparency**

Glass microsphere ForeSphere is transparent and has no saturated hue in comparison to other fillers with inherent color.

## **Adjustable density and durability**

Adjustable density and durability enlarges the scope of opportunities with an option to develop an individual specification in order to accomplish definite customer's production tasks.

# Application

Glass microsphere ForeSphere is universal in application due to variability of parameters, it can be used in grouter mixes for particularly deep oil wells, as well as in space and aircraft industry.



## Construction

Filler pastes, mastics, sealers, binding agents, heat-insulating and sound-insulating coatings, roof coverings, paints (including specific — lightreflecting ones etc.), anticorrosive and other protective coatings, heat sealing.



## Weight-reduced plastics and plastic masses

Thermoplastics of injection molding, sheet and volume laminated compounds, plastics created by reactive injection molding, transfer molding etc.



## Ore-mining and processing enterprises

Glass microsphere ensures stability of emulsion explosive substance. It means that now stowing substance can stay inside a unit longer, and it also makes explosion more fast and directed.



## Medical industry

Impression and molding compositions in dentistry, specific coatings. Fillers for anti-decubitus mattresses.



## Defense industry

Emulsion explosives, missile bodies, weight-reduced materials for aircraft building and space exploration.



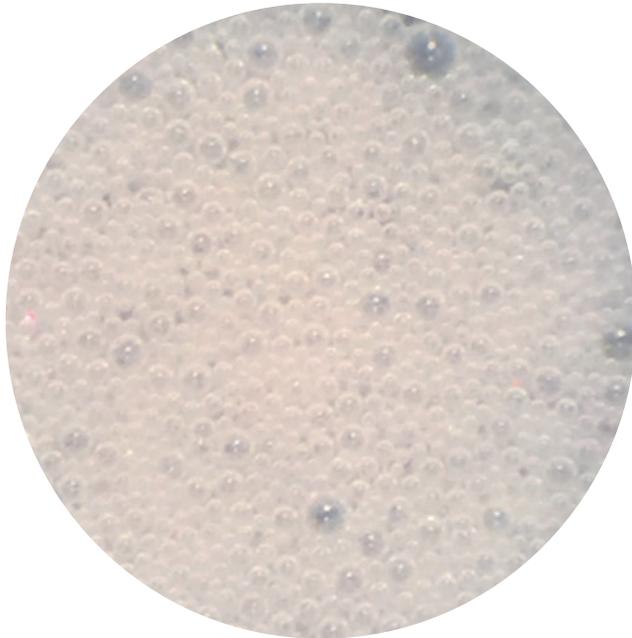
## Oil industry

Oil well cement, protective materials for storing petroleum products. Decreasing density of drilling muds.

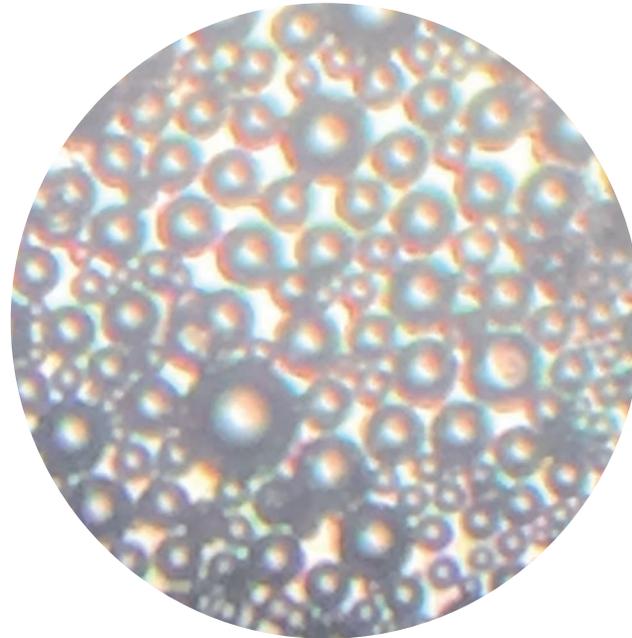


## Chemical industry

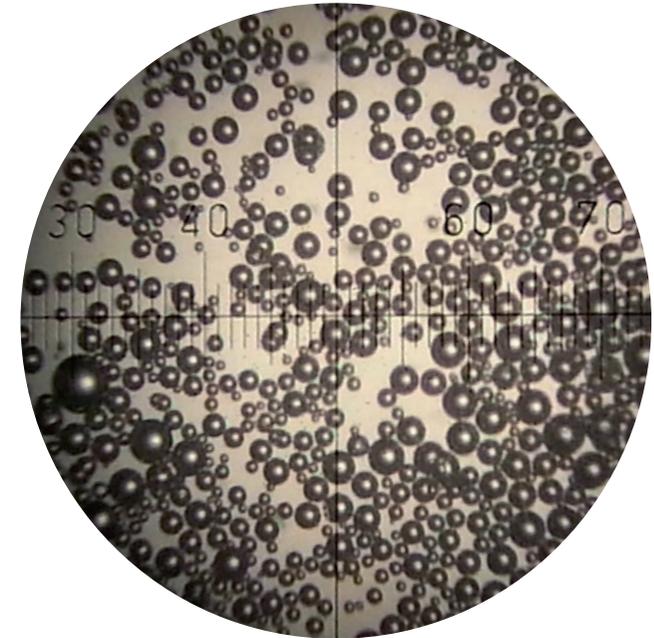
Catalytical materials, foam suppressants, composite materials.



Fractional composition:  
5 – 160 mcm



Bulk density:  
0,08 – 0,39 g/sm<sup>3</sup>



Strength under hydrostatic  
compression: 10 – 400 atm

All production sites of FORES Company are located in Russia, we use only national raw materials and resources, all internal payments and billing are done in rubbles. Our product is comparable to foreign counterparts, but excels in price in contrast with the same level foreign fillers.

High-tech universal filler, hollow microscopic particles of ideal spherical shape. To produce it we elaborated our own recipe of glass. Thus due to special technological methods production allows shaping particles of different parameters.

Glass microsphere ForeSphere is produced by FORES Company at our own capacities, plants are located in Sukholozhsky district in Sverdlovsk region.

# Microspheres ForeSphere

Title	True density g/sm3	Bulk density g/sm3	Strength under hydrostatic compression		% undestroyed microspheres		Residue not more than, %	Humidity mass fraction, %	
			psi	atm	minimum	typically			
ForeSphere 150	0,17-0,20	0,08-0,12	150	10	80	90	5	0.3	0.5
ForeSphere 300	0,20-0,23	0,12-0,15	300	20	80	90	5	0.3	0.5
ForeSphere 500	0,24-0,30	0,14-0,18	500	35	80	90	5	0.3	0.5
ForeSphere 750	0,30-0,35	0,16-0,21	750	50	80	90	5	0.3	0.5
ForeSphere 1 500	0,35-0,45	0,21-0,27	1 500	100	80	90	5	0.3	0.5
ForeSphere 3 000	0,45-0,55	0,27-0,30	3 000	200	80	90	5	0.3	0.5
ForeSphere 6 000	0,55-0,65	0,30-0,39	5 900	400	80	90	5	0.3	0.5

## Discounts

### 2%

When concluding an annual contract with predetermined volume

### 3%

Upon providing prepayment for the volume according to specification

### 5%

Upon purchase from 3 to 5 tons every month

### 10%

Upon purchase from 5 to 10 tons every month

### 15%

Upon purchase from 10 to 20 tons every month

Upon purchase starting from 20 tons every month — individual terms of discounts

## Deferral

Deferral for more than 30 days upon special terms and conditions can be introduced only after 6 months of cooperation.

### Up to 30 days

With deferral up to 30 days — 0%

### 30-60 days

With deferral from 30 to 60 days — plus 3% included into price

### 60-90 days

With deferral from 60 to 90 days — plus 7% included into price

## Fores Company —

since 2000 is specializing in fine aggregate spherical fillers production and it has become an absolute leader on Russian market of proppants.

FORES uses only national raw materials and resources, all billing and internal payments are done in rubbles. Besides that it determines a better price, it allows to make prices of glass microsphere independent from drastic changes in exchange rates.

## 7 years

Entire production is based on unique technologies developed in FORES Company. It took us about seven years of research and experiments to elaborate the method of producing glass microsphere ForeSphere. This technology was originally created in our own laboratory and was put up on a test line, and only then was launched in production chain.

## Scientific center

FORES group has other product divisions, three logistic centers and our proper research center in Yekaterinburg.

## 2015

In 2015 Fores has launched the first production line of glass and aluminosilicate microsphere under brand name ForeSphere.

## Cooperation

**ForeSphere®**

### Opportunities

- Special terms of pricing and order of billing (discounts, deferrals etc.) depending on the order quantity
- Urgent shipping, which includes bulk quantities
- Delivery of micro orders starting from 20 kg
- Price of glass microsphere ForeSphere is independent from drastic changes of exchange rates

### Convenient shipment

- Freight service with any means of transport, furthermore providing a client with any means of transport for the delivery
- Freight escorting from company's warehouse to an area of immediate use of microsphere
- Opportunity for customer pick-up

### Customer technical support

- Design of special supply to accomplish some specific customer's tasks (order from 20 tons)
- FORES technologists may come to client's production sites in order to install and put new products into implementation
- Training client's staff at the production site



Technical information and data educed in the present commercial booklet should be considered typical and used for presentation, it cannot be used to make specifications.

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