



TECHNICAL SPECIFICATION

Adsorbent SORBEUM®

Properties:

SORBEUM® is patented, highly efficient adsorbent produced in EU. It is of grey, almost black color, produced as flakes, extrudates, or of different size pillows, depending on the purpose of use. It has high thermal and sound isolating ability, with a high degree of heat resistance and extraordinary low volume mass. It is manufactured from graphite by physical-chemical treatment and is of the same constitution as the base material that is graphite. From the chemical point of view it is nearly pure carbon.

Range of use:

SORBEUM® - with hydrophobic surface is capable to adsorb crude oil and petrochemical substances that do not dissolve in water and are spilled on water surface, or on the ground. SORBEUM® efficiently adsorbs toxic and chemical substances, mainly acids and alcohol directly. It adsorbs heavy metals and oils from water, harmful gases as well as pollen from air. It is mainly used for prevention and elimination of ecological disasters, for drinking and waste water filters, gas and air filters, to reduce radioactivity and in civil engineering as an isolation and in concrete. For its properties such as low volume mass and high heat resistance (short-term 1.200 °C, long-term 800 °C), it is suitable for thermal and sound isolation and as fire prevention measure. Another possible usage may be manufacturing of heat resistant sealants, fire proof products and insulations and in electrochemistry. SORBEUM® does not sublime until 3.000 °C.

SORBEUM® may be used in the soil, where it acts as a stabilizer of humidity, lightens the soil and reduces evaporation, thus reduces water use.

SORBEUM® has antibacterial properties and absorbs biological matter and wounds.

SORBEUM® has recovery property that means most of the adsorbed substances can be recuperated by pressure, extraction or centrifugal force for further usage.

SORBEUM® is chemically pure carbon; it is not health hazard, biologically and chemically neutral.

Technical data:

1. - Chemical composition:

C (carbon)	90 – 99 % wt.
Rest till 100 %	O, Si, Mg, Al

2. - Test for Fire safety:

Standard used: STN ISO 871

Result: Sample of adsorbent SORBEUM® till 650 °C did not ignite and did not burn.

3. - Adsorption properties for selected chemicals:

Standard used: *ASTM F 726-81*

	Adsorbate:	Adsorption ability g of adsorbate / 1g of <i>SORBEUM</i> [®]
<i>Result:</i>	H3PO4	98 g / 1g
	Motor Oil Madit OH HM 46	52 g / 1g
	Crude oil	53 g / 1g
	Water	0,3 g / 1g

4. Adsorption properties for selected metals:

Standard used: *STN 68 4134*

	Metal:	Adsorption mg of metal / 1kg of <i>SORBEUM</i> [®]
<i>Result:</i>	Manganese (Mn)	130 – 160 mg/ 1kg
	Zink (Zn)	230 – 250 mg/ 1kg
	Cuprum (Cu)	260 – 290 mg/ 1kg
	Chromium (Cr)	200 – 230 mg/ 1kg
	Cadmium (Cd)	280 – 320 mg/ 1kg
	Plumbum (Pb)	910 – 950 mg/ 1kg
	Nickel (Ni)	160 – 190 mg/ 1kg

Types – for information :

<i>SORBEUM</i>[®] L	C (carbon)	min. 99 %
	Free flowing density	0.01 g / cm³ (10kg / m³)
	Grane	mix of flakes and extrudates, dia. 0,1 – 0,5 mm
	<i>Primary used as a product for liquid hydrocarbon and crude oil adsorption where high activity is needed.</i>	
<i>SORBEUM</i>[®] M	C (carbon)	min. 90 %
	Free flowing density	0.02 g / cm³ (20kg / m³)
	Grane	mix of flakes and extrudates, dia. 0,2 – 0,5 mm
	<i>Standard product for common use</i>	
<i>SORBEUM</i>[®] H	C (carbon)	min. 90 %
	Free flowing density	0.03 g / cm³ (30kg / m³)
	Grane	mix of flakes and extrudates, dia. 0,2 – 0,5 mm
	<i>Product suitable for applications, where higher pouring mass is needed</i>	
<i>SORBEUM</i>[®] W	specially treated type L, M or H with increased free flowing density	
	Free flowing density	0.04 g / cm³ (40kg / m³) and more
	<i>Product for applications, where pouring in open space is required</i>	
<i>SORBEUM</i>[®] P	Any of L, M or H packed in pillows	
	Pillow size (upon request) from 10x10 cm to 1,5x5 m	
	<i>Product for adsorption from water surface</i>	
<i>SORBEUM</i>[®] B	Free flowing density	0.03 g / cm³ (30kg / m³) and more
	Grane	mats, cubes, plates of thickness 1 – 25 cm
	<i>Suitable for insulation plates and free forms</i>	

- SORBEUM® A** any of types L, M, H, but activated
Highly activated product, mainly for gas absorption and special purposes
- SORBEUM® K** any of types L, M, H, but activated by selected metals
Product for biological water treatment and as a catalyst

Other technical properties – for information:

Adsorption ability for crude oil substances:	30 till 80 g of substance per 1g of <i>SORBEUM®</i>
Adsorption ability for chemical substances:	10 till 120 g of substance on 1g of <i>SORBEUM®</i>
Water soaking:	less then 0,3g of water on 1g of <i>SORBEUM®</i>
Saturation time:	5 till 60 seconds
Recovery:	more then 65 %, depending on material and technology
Thermal use:	-200 °C till +800 °C
Chemical resistancy:	inert, nonreactive as well as graphite
Physical properties:	conducting electrical current
Free flowing density:	10 – 40 kg/m ³ , 0,01 – 0,04 g/cm ³
Packing:	PE bags 100 l, recycleable
Storage:	unlimited, no special condition necessary W type - 2 years

Usage :

SORBEUM® is poured on a spill on the contaminated water surface. Till a minute the substance is adsorbed, then *SORBEUM®* is remove from the surface using showel, bulldozer, boat or a net. Recovery is done by applying pressure on sorbent, by extraction, or in a centrifuge.

SORBEUM® may be used in mats to prevent dispersion of leaking substance on the water surface, or in filters for water or air, as well as for thermal and radiation insulation.

Liquidation :

SORBEUM® can be liquidated by burning in a boiler producing electricity (heating value as a coal), or after previous agreement, returned to manufacturer for recycling.

Accident measures:

SORBEUM® is fire proof, non exploding and lighter then water on which it flows. After adsorbing other substances, it gains their properties thus proceed according to their usage.

Safety instructions :

SORBEUM® does not contain health hazardous materials. No hazardous material are used as addons in the granulation process. It may contain fine particles, we recomend goggles for eyes protection and common respiration protection. If eye contact was made, wash of the eye by water and use eye cream. If not sufficient, please search for a medical aid.