

1. GENERAL INFORMATION

CelluBOR is a high performance acoustical, thermal and Class 1 UL rated insulation material. Spray applied, CelluBOR conforms easily to complex or irregular surfaces. Engineered for application to virtually any common construction substrate, CelluBOR forms a strong, durable and resilient bond. This insulation system is ideally suited for both new construction and renovation projects. Typical applications include gymnasiums, arenas, convention centers, indoor pools, detention facilities, parking garages, restaurants, houses, entertainment complexes, industrial facilities and recording studios. Product specifications and information about CelluBOR are available on the internet www.cellubor.com.

2. PRODUCT DESCRIPTION

The spray application of CelluBOR eliminates voids, gaps and compressions that occur with other board insulations. This monolithic coating results in CelluBOR's outstanding field performance. CelluBOR utilizes a patented adhesive system which adheres to virtually any substrate including glass, urethane, steel, wood, metal and concrete.

3. THERMAL PERFORMANCE

CelluBOR can be installed from the thickness 20 mm. This will provide R values from 0,54 m²K/W. CelluBOR is also an excellent insulator in unconditioned buildings. Field tests demonstrate that 50°C outdoor temperatures are reduced to as low as 22° at indoor floor level areas depending the thickness. In heat climates, cold generated from operations has often provided enough cold to keep the building comfortable after treatment with CelluBOR. This results in greater worker comfort and increased shelf life of temperature sensitive inventories.

THERMAL INSULATION VALUES

Minimum Thickness** (mm)	Average Thickness** (mm)	Maximum Thickness** (mm)	Thermal Insulation Value (m ² K/W)
25	32	40	0,87
50	65	80	1,76
75	95	115	2,57
100	125	150	3,38
115	150	185	4,05
150	200	250	5,41
175	230	285	6,22
190	250	310	6,76
210	280	350	7,57
225	300	375	8,11

** Based on a thickness variance of ± 25%

4. ACOUSTICAL PERFORMANCE

CelluBOR APPLIED TO SOLID BACKING (CelluBOR thickness = 10cm)

<u>FREQUENCY (HZ)</u>	<u>Reverberation Time (Second)</u>		<u>Sound Absorbtion Coefficient</u>
	<u>Empty Room</u>	<u>Absorbing Surface inside Room</u>	
100	3,77	2,66	0,39
125	7,30	2,59	0,88
160	6,92	2,16	1,00
200	7,95	2,15	1,00
250	8,73	2,19	1,00
315	8,30	2,00	1,00
400	7,80	2,18	1,00
500	8,06	2,19	1,00
630	8,79	2,34	1,00
800	8,07	2,35	1,00
1000	7,51	2,29	1,00
1250	6,89	2,31	1,00
1600	6,37	2,20	1,00
2000	5,60	2,12	1,00
2500	4,64	1,95	1,00
3150	3,53	1,71	1,00
4000	2,86	1,51	1,00
5000	2,18	1,32	1,00

CelluBOR reduces reverberation and noise levels. The result is a more comfortable working environment providing greater utilization of the building. Overall, weighted sound absorbtion coefficient is 1,0 and sound absorbtion class is A.

The unique acoustical properties of CelluBOR also substantially reduce sound transfer between walls and floors. This is ideal where offices, hotel rooms or conference rooms are located adjacent to noisy areas. Acoustical enclosures can also be fabricated and sprayed inside with CelluBOR to isolate loud machinery.

5. DURABILITY AND MAINTENANCE

The adhesive used to apply CelluBOR provides a strong, durable and resilient bond. This unique combination of properties provides remarkable durability. CelluBOR will resist impact and abrasion without the cracking or spalling typical to many cementitious or plaster based materials.

6. FIRE PERFORMANCE RATINGS

Surface Burning Characteristics

CelluBOR has fire retardancy property. According to the **EN 15101** norm CelluBOR's; fire behavior is **B**, smoke production is **s1** and flaming droplets is **d0**.

That means the the fire retardancy characteristic code is **B-s1,d0**

7. ADHESIVE SPECIFICATION

ALKALI SODIUM SILICATE 48 - 50 Bé

ANALYSIS NAME	SPECT VALUE	ANALYSIS RESULT
Appearance	Colorless Liquid	Colorless Liquid
Density, g/cm ³ (20°C)	1,48 – 1,5300	1,5269
Baume, Bé (20°C)	48,0 – 50,0	50,04
%Na ₂ O	13,50 – 15,50	14,8694
%SiO ₂	28,00 – 30,00	30,8777
Module	1,80 – 2,20	2,07
Solid Matter Quantity	42 – 45	45,7471

Flammability:	NON FLAMMABLE	Flash Point :	NOT RELEVANT
Boiling Point :	NOT AVAILABLE	Melting Point :	NOT RELEVANT
Exposure Standard (twa):	NOT AVAILABLE	Evaporation Rate :	NON VOLATILE
pH :	~ 12,8 (% 1 soln)	Volatiles :	NOT AVAILABLE
Specific Gravity :	1,4 ~ 1,56	Solubility :	SOLUBLE
Vapour Pressure :	24 mmHg @ 20C	Upper Explosion Limit :	NOT RELEVANT
Lower Explosion Limit :	NOT RELEVANT		

In wall application, the water - adhesive mixed ratio: %7. (200 kg water, 14 kg adhesive)
With this mixture, 3 ~ 4 m³ (90 ~ 120 kg) CelluBOR can be applied.

In ceiling application, the water – adhesive mixed ratio: %10 (200 kg water, 20 kg adhesive)
With this mixture, 2 ~ 3 m³ (60 ~ 90 kg) CelluBOR can be applied.

8. ADDITIONAL INFORMATION

Additional information, design assistance, Material Safety Data Sheets, other product literature or a list of prominent installations are available on request.