



**AERCEL SYSTEM**

## DATA SHEET:

**TO PRODUCE QUALITY LWCC CONCRETE**

Rev.:2  
081003  
D.S.:  
AER-010

**1. PRODUCT NAME**  
AERCEL FORMULA

**2. DESCRIPTION**

**AERCEL FORMULA** : The foaming agent to produce lightweight cellular concrete at densities as low as 300kg/m<sup>3</sup>.

**3. DATA:** see Tab.1

Tab. 1: AERCEL FORMULA	
Specs	Results
Color	brown
Odor	peculiar
Physical state	Liquid
Specific gravity@15°C	1,15+/- 0,02g/cc

**3.1 Limitations:**

Must be used with approved equipment.



**3.2 Precaution:**

**AERCEL FORMULA**

- It should be stored in its original sealed container in dry areas.
- Do not contaminate with oils, fuels, thinners, detergents or similar products .
- Do not blend the cement slurry with "Admixtures" if they contain de-foamers. Pls consult with our Technical DPT
- Read MATERIAL SAFETY DATA SHEET (MSD)

**3.3 Customs Tariff:** 382340000



**4. AERCEL SYSTEM**

**4a. FOAM PRODUCTION**

**4a1. AERCEL FORMULA**, mixed with clean water and air (see Tab.2), under "turbulence status", by means of a Foam Generatine machine, produces a white creamy and stiff foam (Fig. 1) , which perfectly blends with cement-water slurry.

**4a2. Dosage:** see Tab. 2

Tab. 2: DOSAGE		
AERCEL FORMULA liters	WATER liters	AIR liters
2	100	1400-1500

**4b. LIGHTWEIGHT CELLULAR CONCRETE PRODUCTION**

**4b1.** Foam produced with **AERCEL FORMULA** foaming agent, thoroughly mixed with a water-cement slurry or with a water-cement-sand mortar, allows the preparation of a new material, called lightweight cellular concrete, which matrix contains thousands of small closed (spherical) air cells .

According to the mixed designed requested, the lightweight cellular concrete can be produced at a density varying from 300 up to 1.800 kg/m<sup>3</sup>.

**4b2. Mix Design** : See Tab. 3.

**4b3. Main Applications**

The main applications refer to lightweight cellular concrete having dry density 400kg/m<sup>3</sup> about.

They are:

- 1) Roof slope for drainage & insulation
- 2) Floor screed insulation

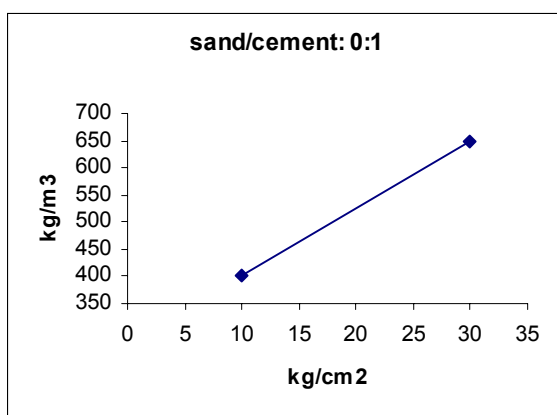
Tab.3. Indicative Mix Design.

LWCL DRY density	Sand S		&	Cement C		Water	Aercel	LWCL WET density
	S : C 4 : 1	S : C 3 : 1		S : C 2 : 1	S : C 1 : 1			
kg/m3	kg/m3	kg/m3	kg/m3	kg/m3	kg/m3	litri/m3	litri/m3	kg/m3
1800	1400 350	1.275 425				280-250	0,30 - 0,28	1940-1930
1700	1320 330					230	0,38	1835
1600	1250 315	1155 385				250-200	0,45 - 0,41	1745-1715
1500		1080 360				250	0,49	1645
1400		1020 340	880 440			270-305	0,56 - 0,51	1560-1570
1300			820 410			285	0,59	1465
1200			760 380			265	0,67	1365
1100			690 345			240	0,76	1245
1000			630 315			220	0,84	1145
900				410 410		290	0,85	1070
800				365 365		260	0,94	960
700				320 320	580	230-290	1,03 - 0,88	850-915
650					540	270	0,93	860
600					495	247,5	1,00	795
550					455	227,5	1,05	735
500					415	207,5	1,11	680
<b>450</b>					<b>375</b>	<b>190</b>	<b>1,16</b>	<b>620</b>
<b>400</b>					<b>330</b>	<b>165</b>	<b>1,22</b>	<b>555</b>
350					290		1,28	500
300					250		1,33	445

Figures above are purely indicatives and should be taken as guidance only. Due to the specific characteristics of the components available in situ, the quantity appearing on this page can vary.

Tab. 5. LWCC thermal Insulation

Tab.4. Compressive Strength .



density kg/m3	$\lambda$ (c.c.t) W/mh°K
400	0,09
480	0,1
560	0,11
640	0,13

density kg/m3	K-values (conductance) in W/m²K versus thickness				
	5cm	10cm	15cm	20cm	25cm
400	1,32	0,76	0,54	0,41	0,34
450	1,43	0,83	0,59	0,45	0,37
500	1,53	0,90	0,64	0,50	0,40
550	1,62	0,97	0,69	0,54	0,44
650	1,78	1,08	0,78	0,61	0,50

All data mentioned are for reference purpose only and are not intended as a warranty or guarantee.

**PLYDEX**

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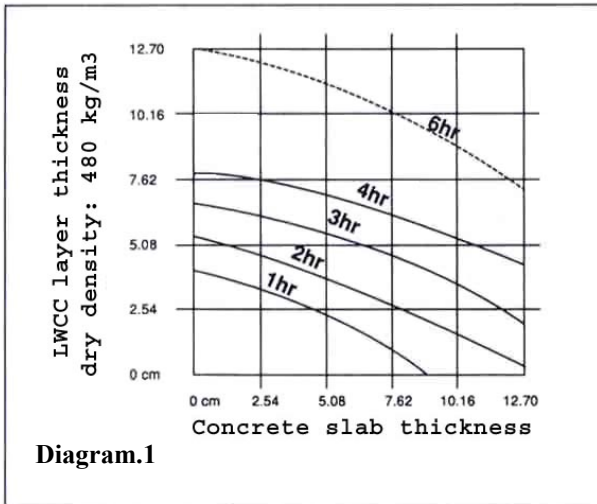
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GEOTEXTILES, GEOMEMBRANES, DRAINAGE MEDIA, ANTIEROSION MATS, CONCRETE SPECIALITIES.

**CELLULAR CONCRETE**  
**STRUCTURAL CONCRETE**

**CELLULAR - STRUCTURAL CONCRETE SLAB  
FIRE ENDURANCE**



**Diagram.1**

**Tab. 6. LWCC fire behaviour**

Test	Index
Flammability	0
Flame spread	0
Smoke production	0

**4b4. Other applications**

They refer to Lightweight Cellular Concrete ranging from 300 up to 1.800 kg/m<sup>3</sup>:

- all-purpose fill material (exhausted wells, abandoned underground fuel tanks, tunnels backfill)
- fire barriers
- roads reinstatements
- landfill capping
- low-loadbearing poor soil replacement
- soil reinforcement
- embankments for roads
- precast panels
- cavity wall insulationshock absorbing, energy dissipating backpacking
- material for military/security projects
- safety area for emergency landing on runways

**4b5. Characteristics**

Leightweight cellular concrete characteristics  
Strongly depend on dry density and cement dosage/m<sup>3</sup>

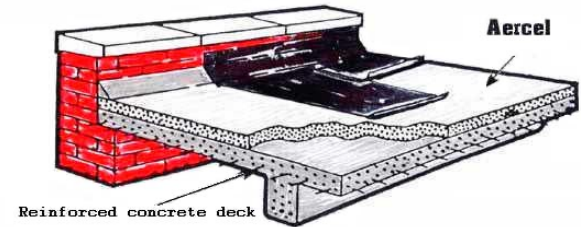
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**4.3.1 Compressive strength**

See Tab 4 for LWCC having 400 kg/m<sup>3</sup> dry density.  
For other densities, contact PLYDEX technical DPT.

**4.3.2 Thermal Insulation**

See Tab 4 for LWCC having 400 kg/m<sup>3</sup> dry density.  
For other densities, contact PLYDEX technical DPT.



**4.3.3 Fire behaviour**

See Tab.6 and Diagram. 1.

**5. MACHINES**

Lightweight cellular concrete has to be produced with special machines according to the application requested. Please contact Plydex technical DPT.

**5.1 Cement only mixtures (300-650 kg/m<sup>3</sup>)**

For cement only mixtures machines requested are:

- n.1 Continous Foam Generator (manual/automatic)
- n. 1 Mixer 5/85,
- n. 1 Cement Feeder,
- n. 1 Conveying Pump 2/10
- n. 1 Electric Control Board
- n. 1 PVC reinforced hose (D60mm) : 50 m
- n. 1 Rubber reinforced hose (D60mm) : 60m.
- n. 1 set of couplings, connections + Instr. Manual

**5.2 Sand – Cement mixtures (650-1.800 kg/m<sup>3</sup>)**

To cast sand-cement lightweight mixtures, traditional concrete mixers can be used. For further informations contact Plydex technical DPT.

**6. PACKAGING**

30 kg-cans; 230 kg-drums

**7. ANCILLARY PRODUCTS**

- a. **Quick**: plasticizer/set booster for winter season
- b. **Z-fibre**: fibers for LWCC microreinforcementi
- c. **Ad-latex**: polymer dispersion for LWCC repairs.

**8. TECHNICAL SERVICES**

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