Easi-Base chemical resistance properties

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FP McCann Easi-Base System – applications beyond conventional wastewater

The Easi-Base System has become a popular consideration in waste water management within both the industrial food and chemical processing industries.
The following companies have endorsed the Easi-Base waste water system.

1. Blue Cheese Factory, Cashel, Co. Tipperary, Ireland
2. The Carbery, Cheese Factory, Ballineen, Co. Cork, Ireland
3. Takeda Pharmaceuticals, Bray, Co. Wicklow

The common factors which leant the companies toward the use of the Easi-Base system within their manhole construction were:

a. The use of abrasive chemicals for cleaning their plants – caustic soda being the main one
b. Change in temperatures of water and chemicals being used
c. Prevention of Sedimentation
d. Less odour
e. Hydraulic properties
f. Manhole life expectancy – currently manholes are being replaced every 3 – 5 years through corrosion

The Easi-Base system provides all the structural advantages of concrete whilst the Polypropylene liner offers the added advantages of having:

a. PH resistance of between PH2 and PH12 for liquids at 20 degrees Celsius
b. Tested for chemical resistance in accordance with relevant EN Standards and approved by German Institute of Building Technique (DITB) - (report attached)
c. Polypropylene also exhibits greater hydraulics than concrete preventing sedimentation, odour and build up of germs
d. 80 year guarantee

Easi-Base - getting you out of a hole fast

Easi-Base is a prefabricated benched and channelled precast manhole base unit. The precast system incorporates a fully integrated, water-tight polypropylene liner replacing the outdated labour intensive method of in-situ manhole base construction on site.

It adopts the principles of Lean Construction being off-site manufactured and installed in a matter of minutes when delivered.

- **WRc Approved**
- **Water Company Approved**
- **80 year guarantee**
- **Health, Safety & Environmentally friendly**

Easi-Base chemical resistance properties within manholes

1. Abrasion Test:

The thickness test (abrasion), traction resistance, pulling / stretching and choc resistance have been made on samples of base liner plaques delivered as they are and after 28 days storage in H2O, NaOH at 5%, H2SO4 at 5% and 5% of classical sanitary cleaning product containing peroxide (commercial name : Domestos).

For evaluating the water tightness and in order to see the tendency, intermediate results have been recorded after 1, 3, 7 and 14 days.

The test was conducted in accordance with the acceptance principals of the German Institute for Building Technique (DITB) in accordance with the following test norms:

- **Water tightness according to DIN 53 479 (07/76)**
- **Traction, stretching / crack according to EN ISO 527-1 (04/96)**
- **Chocking resistance according to DIN EN ISO 179 (03/97)**

1.01 Result of the determination of the density change

Material tested is Polypropylene used in manhole bases. The polypropylene is tested in the state as it is delivered to final customer.

Stocking condition	Stocking period	Number of samples	Density in g/cm3			Modification in % compared to the sample « 0 »
			Maximum value	Minimum value	Average value	
Sample « 0 »	None	3	0,905	0,903	0,904	0
H2O (water)	1 day	3	0,905	0,902	0,904	0
	3 days	3	0,905	0,902	0,903	-0,1
	7 days	3	0,904	0,902	0,903	-0,1
	14 days	3	0,903	0,900	0,902	-0,2
	28 days	3	0,905	0,904	0,905	+0,1
H2SO4 (sulphuric Acid or vitriol)	1 day	3	0,903	0,901	0,902	-0,2
	3 days	3	0,905	0,903	0,904	0
	7 days	3	0,904	0,903	0,904	0
	14 days	3	0,901	0,903	0,900	-0,4
	28 days	3	0,904	0,903	0,904	0
NaOH (Sodium Hydroxide or caustic soda)	1 day	3	0,903	0,903	0,903	-0,1
	3 days	3	0,903	0,903	0,903	-0,1
	7 days	3	0,904	0,903	0,904	0
	14 days	3	0,904	0,900	0,902	-0,2
	28 days	3	0,904	0,902	0,903	-0,1
Sanitary cleaning product	1 day	3	0,905	0,903	0,904	0
	3 days	3	0,904	0,901	0,902	-0,2
	7 days	3	0,904	0,903	0,903	-0,1
	14 days	3	0,903	0,899	0,901	-0,3
	28 days	3	0,904	0,904	0,904	0

The density modification of the samples after having been stored 28 days in H2O, NaOH at 5%, H2SO4 at 5 % and 5% of classical sanitary cleaning product containing peroxide is inferior to 2%.

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1.01.1 Definition of the traction and of the modification of the crack when been stretched Test Criteria:

- DIN EN ISO 527-1 (04/96)

Test Conditions:

Conditioning after extracting from the storage: 2 h

Test speed: 50 mm / mn

Tested object:

Sample type 1A according to DIN EN ISO 527-2 (07/96) cut from the plaque material. Sample thickness = 8 mm

Stocking condition	Stocking period	Number of samples	Traction resistance in g/cm3			Density in g/cm3
			Maximum value	Maximum value	Maximum value	
Sample « 0 »	None	5	24,15	23,19	23,45	0
H2O (water)	28 days	6	23,77	23,36	23,49	+0,2
H_2SO_4(sulphuric Acid or vitriol)	28 days	6	24,46	23,24	23,79	+1,4
NaOH (Sodium Hydroxide or caustic soda)	28 days	6	24,23	23,15	23,56	+0,5
Sanitary cleaning product	28 days	6	24,58	23,47	23,85	+1,7

The modification of the traction of the samples stored after 28 days in H2O, NaOH at 5%, H2SO4 at 5 % and 5% of classical sanitary cleaning product containing peroxide is inferior to 10%.

Stocking condition	Stocking period	Number of samples	Elongation at fracture in %			Density in g/cm3
			Maximum value	Maximum value	Maximum value	
Sample « 0 »	None	5	497,26	153,89	290,54	0
H_2O (water)	28 days	6	423,10	161,14	289,03	+0,5 %
H_2SO_4 (sulphuric Acid or vitriol)	28 days	6	409,60	287,04	359,80	+23,8 %
NaOH (Sodium Hydroxide or caustic soda)	28 days	6	437,15	151,84	316,01	+8,8 %
Sanitary cleaning product	28 days	6	434,89	145,75	323,93	+11,5 %

The modification of the elongation at fracture of the samples stored after 28 days in H2O, NaOH at 5%, and 5% of classical sanitary cleaning product containing peroxide is inferior to 20%.
The modification of the elongation at fracture of the samples stored after 28 days in H2SO4 at 5 % was of 23,8 > 20%.