576-402

3M

Chemical Sorbents

Technical Data Sheet

Use

For control of spills of hazardous liquids.

Product Description

3M Chemical Sorbents are made from inert, synthetic fibres principally of polypropylene. They are available in a wide range of formats and are lightweight and dust free. They have a high absorption capacity which minimises the amount of waste for disposal.

Colour

Yellow – highly visible

Selection Guide

Minibooms: For surrounding / containment of spills. Prevents further spreading of the spill.

Pillows: For absorption of the bulk volume of a spill. Also useful for plugging holes.

Sheets / Rolls: For fast coverage and absorption of spills. Rolls can be torn to the required length. Both formats can be used to wipe up the final residue of liquid once the bulk has been absorbed.

Particulate: For fast coverage and absorption of spills.

Physical Data

Number	Size (cm)	No. / Case	Case Sorbency (litres)	Case Weight (Kg)
Sheets				
P110	28 x 33	200	50	6.5
Rolls				
P130	33 x 3000	2	50	6.0
P190	48 x 3000	2	72	8.6
Pillows				
P300	18 x 38	16	32	3.3
Minibooms				
P200	7.5Ø x 120	12	45	5.5
P208	7.5Ø x 240	6	45	5.5
P212	7.5Ø x 370	4	45	5.5
P224	7.5Ø x 730	2	45	5.5
P248	7.5Ø x 1460	1	45	5.5
Particulate				
P500	(5.4Kg)	–	54	5.4

Absorption / Sorbency

The case sorbency quoted in the table is based on the American Standard Test Method (ASTM) F726-81 using a medium viscosity fluid (20 weight motor oil).

Another method of measuring absorbent performance is by calculating the *sorbency ratio*. This is the ratio of liquid weight absorbed to the dry absorbent weight.

$$\text{Sorbency} = \frac{\text{wet weight - dry weight}}{\text{dry weight}}$$

The sorbency ratio and speed of absorption depend upon the ambient temperature, the polarity of the liquid, its surface tension and viscosity. For 3M Chemical Sorbents the sorbency ratio is 10–15 for most liquids.

Typical Liquids Absorbed

Chemical sorbents are suitable for absorbing a very wide range of liquids. The following list has been compiled based upon 3M tests as an indication of absorbency with major chemical groups. This is by no means exhaustive, and 3M recommends that a sample of sorbents should be tested with any liquid not listed.

Chemical	Sorbency
Acids	
Acetic acid (glacial)	10
Hydrofluoric 48%	12
Phosophoric 86%	17
Sulphuric 50%	14
Nitric (concentrated)	12
Nitric (diluted)	11
Hydrochloric 15%	14
Hydrocarbons / Oils	
Fuel oil number 2	9
Oil SAE 20W-50	10
Mineral Oil	8
Peanut Oil	9
Ketones	
Acetone	8
Methy Ethyl Ketone	12
Alcohols	
Ethanol	8

Alkalis	
Sodium Hydroxide 1N 40g / l	10
Sodium Hydroxide 7N	6
Sodium Hydroxide 10N	2
Ammonium Hydroxide 35% NH3	15
Aromatic	
Toluene	10
Benzene	11
Ethylbenzene	12
Styrene	13
Chlorinated Solvents	
Carbon Tetrachloride	18
Methalene Chloride	13
1.1.1. Trichloroethane	11
Trichlortrifluoroethane	13
Trichloroethylene	13
Tetrachloroethylene	15
Glycols	
Dipropylene Glycol	11
Propylene Glycol	11
Diethylene Glycol	2
Polyglycol E200	3
Polyglycol E300	3
Polyglycol E400	3
Others	
Hydrazine	10
Hydrogen Peroxide 6%	9
Ethyl Acetate	7
Antifreeze	10
Water	10
Cutting Fluid	10
Machine Coolant	10

Limitations of Use

Do not use 3M Chemical Sorbents with the following concentrated chemicals as there is a risk of degredation: Oleum, Chlorosulphonic acid, Liquid bromine, Fuming nitric acid, Chromic acid, Sulphuric acid and Hydrogen peroxide. 3M recommends that a compatibility test be carried out prior to using the absorbent with the liquid concerned. For use in temperatures over 60°C it is essential that such a compatibility test is made prior to use.

Precautions

3M Chemical Sorbents are not in themselves hazardous products, however, they take on the characteristics of the liquids they absorb. Adequate precautions should be taken when handling or storing hazardous / inflammable materials and appropriate personal protective equipment should be worn. Users should be informed of the risks incurred in use, storage and disposal of used sorbents.

Disposal

Dispose of used sorbents only in accordance with local and national regulations. Disposal companies should be consulted for their recommendations. Options may include incineration and landfilling depending on regulations.

Waste Minimisation

3M recommends that waste streams should wherever possible be minimised. 3M sorbents promote minimisation by only being a small part of the total waste. In addition, where laws allow, 3M Chemical Sorbents can be disposed of by incineration yielding less than 0.02% ash (ASTM D-482). The high BTU value of the sorbents (40,000 BTU / Kg) is also favourable for incineration and waste-to-fuel systems. Furthermore, 3M sorbents may be wrung out and reused (90% recovery using mechanical wringing according to ASTM F726-81). The recovered liquid may itself then be reused or disposed of.

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