

WHAT ABSORBENT CHOICES ARE THERE FOR LIQUID SPILLS AND NEUTRALISERS

A) INORGANIC MINERAL BASED ABSORBENTS

These include Vermiculite, Attapulgite, Saponite, Kitty Litter, Perlite, Gypsum, Diatomaceous Earth.

These are all non-reactive, inert, inorganic, and generally able to absorb virtually any liquid spill except elemental mercury (see below).

Advantages and disadvantages: vermiculite is light and bulky, attapulgite and similar can get soggy with aqueous liquids and may react with strong mineral acids. Gypsum (calcium sulphate) is best for paints and the heavier organic liquids but is best applied as granules. Diatomaceous earth (aka kieselguhr) can be dusty.

Perlite is an excellent soaker and in combination with vermiculite for example, provides the best all round choice.

B) OTHER INORGANIC ABSORBENTS

Examples of these include activated charcoal, sand, soil and activated alumina.

Charcoal is more of an adsorbent (liquids adhere to the surface of the solid) so you may be able to recover the liquid. These are generally not good all-rounders and usually expensive and more of use as deodorisers. Alumina (aluminium oxide activated or not) is good as an inorganic solid diluent and is good for metal powders to reduce their reactivity (aluminium, magnesium, iron etc)

Sand is a poor absorber and of little use other than for damming a spill. It will usually just make a bigger mess. Same goes for soil and earth.

C) ORGANIC ABSORBENTS

Examples are coconut coir, polypropylene mats and sausages, sawdust, rags, and paper towels

These have restricted usage and are not considered all-rounders. Coconut coir is excellent for oils and is a fire retardant, polypropylene is similar but is more of an adsorbent and comes in many manifestations (mats, booms, sausages, powder etc).

Rags and paper towels are poor absorbers and present a risk of self-ignition with flammable liquids.

Sawdust can be classified as a class 4.1 flammable solid but is a weak absorbent and is too reactive to be of much use especially with liquid oxidisers.

D) ELEMENTAL MERCURY

Do not use powdered sulphur, it doesn't work and will only create a bigger mess. Commercial mercury absorbers such as HgX work well as do the mercury sponge in the lid type models. Granulated zinc (not zinc dust) will form a solid amalgam with mercury and not release mercury vapour. Amalgam can be swept up. Solutions of mercury salts can be treated with lime sulphur, a commercial fungicide which will precipitate the mercury as an insoluble sulphide

E) NEUTRALISERS

For acids use soda ash (anhydrous sodium carbonate) or sodium bicarbonate-when the fizzing stops you know you have added enough. For alkaline spills sodium acid sulphate (from pool shops) is effective. Ammonia solutions can be treated with solid citric acid. Lime as calcium hydroxide not the oxide, is recommended for bromine and hydrofluoric acid and soluble fluorides.

-You can combine one of the absorbents from A) above with a neutraliser to prepare a good all-purpose spill kit.

-Remember the waste collected from a chemical spill is usually chemical waste and requires collection and disposal with your other wastes.

- Look at what chemicals you are going to use and have the required spill kit ready. A valid risk control

-Never reuse used absorbents.