

# AMPHOMAG®



## UNIVERSAL SPILL SORBENT

WITH PH INDICATOR

A safe amphoteric material for acid-base neutralization, universal spill clean-up and vapor suppression

Amphomag® is a rapid response powder that safely adsorbs and treats all kinds of spills. When used as a first response material, Amphomag is exempt from treatment regulations under EPA regulations<sup>1</sup>. In addition, Amphomag renders many common Hazmat substances safe to dispose of in sanitary landfills after required testing. This single product can be used on acids, bases, organics, hydrocarbons, water reactive liquids, poisons, air reactive liquids, oxidizers, reducing agents and a host of other types of chemicals. Even strong chemicals like sulfuric acid, ammonia and caustic soda are quickly adsorbed and safely neutralized with Amphomag.

What is Amphomag®?

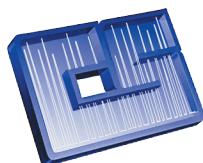
- Unique containment medium unsurpassed in performance and utility for containment of any spilled material
- More than a simple sorbent, it also neutralizes acids and bases
- Cost effective, delivering savings at every level of a clean-up program
- Designed to change colors: red is for acid, blue is for base, and yellow/green is neutral
- Easy to use, requiring no additional training or safety equipment
- Safe to handle, requiring no special precautions
- Easy to store, at all temperatures and humidities when kept dry
- Superior vapor suppression, comparable to activated carbon with the most dangerous volatile organic compounds
- Vapor and gas neutralizer for chlorine, ammonia, sulfur dioxide and hydrogen chloride
- Reduces training costs and accidental misuse in response programs
- Produces less heat and spattering than any other neutralizer available
- Most powerful and cost effective acid-base neutralizer available
- Not toxic to humans, animals, or plant life
- Stable for long term containment of highly hazardous materials
- Rust inhibitor and prevents degradation of Hazmat shipping and storage containers
- Gas neutralizer and adsorbent preventing pressure build-up in containers

If you had a fire in your house would you reach for a fire extinguisher or kitty litter to put it out? Amphomag®, like a fire extinguisher, is designed for your special needs.

There are three reasons why Amphomag is the most cost effective and best solution for your clean-up needs.

1. First Responders can immediately use Amphomag to contain a spill.
2. Application of the wrong agent and overdosing is eliminated.
3. Vapor releases are nearly eliminated.

<sup>1</sup> CFR 40: 264.1 (g) (8) (i)



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Amphoteric materials behave like an acid or a base. This key property makes Amphomag® the ideal spill response agent for anyone handling hazardous chemicals. Unlike other response agents, Amphomag was designed for this application. Here are some examples to consider:

The number one hazmat material for accidental injury is sulfuric acid. The primary reason for such an injury is mistaking hazmat for water. The procedure to identify an unknown liquid and treat it with the appropriate response material is complicated and lengthy. Applying Amphomag to water creates no significant cost or reaction with would indicate a false positive ID for hazmat. If the hazmat is sulfuric, a color change indicates red for acid and blue for bases. Sulfuric is rendered as harmless Epsom salt. Caustic soda or sodium hydroxide turns blue until neutralized (green or yellow) and is rendered as simple milk of magnesia.

Amphomag® treats all kinds of spills. Acids, bases, organics, hydrocarbons, water reactive liquids, air reactive liquids, oxidizers, and reducing agents like hydrazine. Wrong application of spill clean-up agents or overdosing is eliminated with Amphomag. Additional amounts of Amphomag in excess of neutralization creates no hazard since Amphomag is not a controlled material for sanitary waste landfills.

Since Amphomag is an amphoteric buffer, you don't have to worry about overdosing. It always goes to the same safe level of between 9 to 10.5.

Amphomag® has been tested for vapor suppression and is unsurpassed for acidic vapors and is comparable to activated carbon for organic or hydrocarbon vapors. Amphomag adds no additional BTU value to a hydrocarbon and will not support combustion. Common organics like paint related materials will easily pass the paint filter test so that landfilling becomes an option.

## **Amphomag® Reactions with Liquid or Gas Releases**

Technical information for Amphomag when applied to various materials is supplied in the following tables. This information is not complete, and it is intended as an informational source only, and it is not to be relied upon to replace experienced judgment and expert training for responding to any hazardous material spill.

The following tables describe the reactions of Amphomag with various types of liquid or gas releases. Across the top of the tables are the important parameters to be considered when a release occurs. Amphomag performance is described by the following terms:

### Amphomag Needed

To neutralize:	Amount of Amphomag needed to bring pH into a safe range. Amphomag with pH indicator will change colors in the pH range of 6 to 11.5
To contain:	Amount of Amphomag needed to contain the release.

### Resultant Material

Mg salt complex:	After neutralization, the product formed will be a magnesium salt and a mixture of other related compounds depending on the material neutralized. Such mixtures constitute complex inorganic salts and/or organic salts or related organic compounds. Amphomag is a magnesium oxide, magnesium sulfate complex salt which is produced as a powder, and it is also an amphoteric buffer (i.e. it buffers both acids and bases). Organic materials are merely contained in a non-combustible inorganic matrix suitable for long-term storage of hazardous materials (if there are any after applying Amphomag).
Adsorbed substance:	The spilled material is not neutralized. It is only adsorbed or contained.

### RCRA (Resource Conservation Recovery Act)

Yes, No:	Is resultant product after neutralization or containment listed by the Resource Conservation Recovery Act (RSCA)?
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### Hazardous After Contained?

Yes, No:	This is important for determining whether the resulting material is hazardous waste.
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### Special Precautions

No:	This means there are no special precautions in addition to those necessary to clean-up the type of spilled material or released substance.
Heat:	Additional precautions may be necessary to protect against the effects of heat then are normally required to clean-up the spill because of the containment agent (in this case, Amphomag). No known fire hazard has ever evolved as a result of using Amphomag; however, heat evolved during certain neutralizations may require special shovels of time allowances before placing neutralized waste in plastic containers.
Vapors:	Additional precautions may be necessary to protect against vapors then are normally required to clean-up the spill because of the containment agent (in this case, Amphomag).
Splattering:	Additional precautions may be necessary to protect against splattering then are normally required to clean-up the spill because of the containment agent (in this case, Amphomag).
No Indicator:	Additional precautions may be necessary to test pH due to loss or failure of indicator which may result because of the interference of the spilled substance with the “built-in” indicator (in this case, Amphomag).

**Table 1: Acid Spills**

<b>Acid Spill</b>	<b>Amphomag Needed</b>	<b>Resultant Material</b>	<b>RCRA?</b>	<b>Hazardous After Contained?</b>
Acetic	To neutralize pH	Mg salt complex	No	No
Acrylic	To neutralize pH	Mg salt complex	No	No
Arsenic	To neutralize pH	Mg salt complex	Yes	Yes
Boric	To neutralize pH	Mg salt complex	No	No
Chromic	To neutralize pH	Mg salt complex	Yes	Yes
Citric	To neutralize pH	Mg salt complex	No	No
Formic	To neutralize pH	Mg salt complex	No	No
Glycolic	To neutralize pH	Mg salt complex	No	No
Hydrocyannic	To neutralize pH	Mg salt complex	Yes	Yes
Hydrochloric	To neutralize pH	Mg salt complex	No	No
Hydrofluoric	To neutralize pH	Mg salt complex	No	No
Hypochlorous	To neutralize pH	Mg salt complex	No	No
Nitric	To neutralize pH	Mg salt complex	No	No
Oxalic	To neutralize pH	Mg salt complex	No	No
Perchloric	To neutralize pH	Mg salt complex	No	No
Phosphoric	To neutralize pH	Mg salt complex	No	No
Sulfuric	To neutralize pH	Mg salt complex	No	No
Sulfurous	To neutralize pH	Mg salt complex	No	No

**Table 2: Base Spills**

<b>Base Spill</b>	<b>Amphomag Needed</b>	<b>Resultant Material</b>	<b>RCRA?</b>	<b>Hazardous After Contained?</b>
Ammonium hydroxide	To neutralize pH	Mg salt complex	No	No
Aniline	To neutralize pH	Mg salt complex / adsorbed substance	Yes	Yes
Calcium hypochlorite (soln.)	To neutralize pH	Mg salt complex	Yes	Yes
Ethanolamine	To neutralize pH	Mg salt complex / adsorbed substance	Yes	Yes
Hydrazine	To neutralize pH	Mg salt complex / adsorbed substance	Yes	Yes
Methylamine	To neutralize pH	Mg salt complex / adsorbed substance	Yes	Yes
Potassium hydroxide	To neutralize pH	Mg salt complex	No	No
Sodium cyanide (soln.)	To neutralize pH	Mg salt complex	Yes	Yes (Poison)
Sodium hydroxide	To neutralize pH	Mg salt complex	No	No
Sodium hypochlorite (soln.)	To neutralize pH	Mg salt complex	Yes	Yes (Oxidizer)

**Table 3: Gas Releases**

<b>Gas Release</b>	<b>Amphomag Needed</b>	<b>Resultant Material</b>	<b>RCRA?</b>	<b>Hazardous After Contained?</b>
Ammonia	To neutralize pH / to contain	Mg salt complex	No	No
Chlorine	To neutralize pH / to contain	Mg salt complex	Heat	No
Hydrogen chloride	To neutralize pH / to contain	Mg salt complex	Heat	No
Sulfur dioxide	To neutralize pH / to contain	Mg salt complex	Heat	No

**Table 4: Organic (Flammable) Spills**

<b>Organic (Flammable) Spills</b>	<b>Amphomag Needed</b>	<b>Resultant Material</b>	<b>RCRA?</b>	<b>Hazardous After Contained?</b>
Paint related material	To contain	Adsorbed substance	No	Yes
Fuels (diesel, gasoline, kerosene, etc.)	To contain	Adsorbed substance	No	Yes
Ketones	To contain	Adsorbed substance	No	Yes
Ethers	To contain	Adsorbed substance	No	Yes
Solvents	To contain	Adsorbed substance	No	Yes
Alcohols	To contain	Adsorbed substance	No	Yes

**Table 5: Poison**

Poison	Amphomag Needed	Resultant Material	RCRA?	Hazardous After Contained?
Cyanides	To contain	Mg salt complex / Poison	No	Yes
Insecticides	To contain	Adsorbed substance	No	Yes
Pesticides	To contain	Adsorbed substance	No	Yes
Herbicides	To contain	Adsorbed	No	Yes

**Table 6: Mixtures**

Mixtures	Amphomag Needed	Resultant Material	RCRA?	Hazardous After Contained?
Biohazards	To contain	Adsorbed substance	No	Yes
Radioactive	To contain	Adsorbed substance	No	Yes
Metal slurries	To contain	Adsorbed substance	No	Yes

**Table 7: Oxidizers**

Oxidizers	Amphomag Needed	Resultant Material	RCRA?	Hazardous After Contained?
Hypochlorites	To neutralize pH / to contain	Mg salt complex	No	Yes
Acids	To neutralize pH	Mg salt complex	Heat, splattering	Not from pH
Bases	To neutralize pH	Mg salt complex	No	Not from pH
Gases	To neutralize pH / to contain	Mg salt complex	Heat	Yes
Peroxides	To neutralize pH / to contain	Mg salt / oxidizer	Heat	Yes



**Table 8: Water Reactive**

Water Reactive	Amphomag Needed	Resultant Material	RCRA?	Hazardous After Contained?
Metals	To contain	Adsorbed substance	Vapors, Heat	Yes
Organics	To contain	Adsorbed substance	No	Yes
Salts	To contain	Mg salt complex	Heat	Yes
Poisons	To contain	Adsorbed substance, Mg salt complex / poison	No	Yes

**Table 9: CFCs, CHCs**

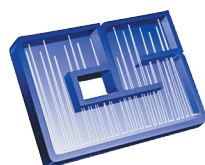
CFCs, CHCs	Amphomag Needed	Resultant Material	RCRA?	Hazardous After Contained?
Chloroform	To contain	Adsorbed substance	No	Yes
Freons	To contain	Adsorbed substance	No	Yes
PCBs	To contain	Adsorbed substance	No	Yes
TCBs	To contain	Adsorbed substance	No	Yes
1,1,1 trichloroethane	To contain	Adsorbed substance	No	Yes
Trichloethylene	To contain	Adsorbed substance	No	Yes

\*\* Note: Amphomag® is not recommended for explosives.

**Chart 1: Neutralization of Common Acid and Base Spills (1 lb.) Using a Neutralizing Agent**

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Premier Magnesia

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