

Petroleum Mitigation Agent-RTU

Always use PMA-RTU in accordance with State, Federal or Local Approval.

Vapor Suppression ***Spill Response***

Petroleum Mitigation Agent has an amazing ability to suppress or eliminate Volatile Organic Compounds (VOC's). Unlike foam, which suppresses vapor only as long as the blanket lasts, **PMA-RTU's** unique properties encapsulate and emulsify the hydrocarbon giving long-term vapor suppression.

PMA-RTU can be applied with any water applicator. Special equipment is not required. Since **PMA-RTU** is not foam, it can be applied on high wind days as well as hillsides. For large sites, applicators can include foam eductors, water trucks, and sprinkler systems, for smaller jobs, a hand pump sprayer, water extinguisher, or garden hose with a fertilizer attachment on the nozzle works quite well.

Understanding **PMA Ready to Use**

What is PMA Ready to Use?

The original objective of **PMA-RTU** was to address a hydrocarbon spill cleanup with the environmental understanding to minimize impact while not sacrificing a responder's safety. **PMA-RTU** was not developed as a fire-fighting agent, however, because of **PMA's** ability to suppress vapor, this product is a natural aid in controlling flammables. Using **PMA-RTU** will emulsify the hydrocarbon into macroemulsions and encapsulating those particles in a water/oxygen bearing solution.

Foams only separate oxygen from hydrocarbons. Sand and most absorbents only soak up the bulk of the spilled product but always leave residual and does nothing to enhance (spill) remediation.

After years of working with the military and consulting scientists and chemical engineers, along with hundreds of test formulations the resulting blend of biodegradable surfactants was created.

How Does the Chemical React?

PMA-RTU is a blend of water based, biodegradable surfactants that reacts with petrochemical, hydrocarbon and animal oils. **This reaction is physical not chemical.** Agitation enhances the physical reaction.

PMA-RTU has three physical reactions to oils:

- Emulsifies
- Encapsulates
- Disperses

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How the product works:

PMA-RTU's ability to solublize and emulsify oils surpass simple wetting agents and emulsifiers that reduce surface tension to fight a fire. **PMA-RTU** is capable of lifting Hydrocarbons up from the road surface and encapsulating those hydrocarbons allowing Responders to leave an accident scene clean, and hydrocarbon free.

Gasoline and diesel fuel spills will saturate asphalt and its destructive properties will cause degradation in time and create potholes. Application of **PMA-RTU** will pull those hydrocarbons up from the asphalt or concrete and encapsulate them in the stable emulsion. Apply absorbent and roadway cleanup has never been easier. This unique encapsulation and emulsification process also dramatically reduces vapor release. The vapor can be suppressed to the point that the fuel will not support combustion.

This action also separates ring structures as well as the long chain hydrocarbons into "microemulsions". This separation does not break the structure, the **PMA-RTU** weakens the cohesive forces that hold the structures in succession. If you are dealing with a C-16 chain hydrocarbon it remains a C-16 chain hydrocarbon. Benzene rings remain Benzene rings.

Dispersion is the final reaction.

To separate structures you need room. **PMA-RTU** is normally applied in the ready to use solution. This delivery along with water helps allow the "room" for the separation of molecules but is also applied to allow fogging or agitation mixing of the **PMA-RTU** and the hydrocarbon. This water allows for initial separation to suppress volatiles however, a design characteristic of the product is to allow a "squeezing" that will facilitate separation for recovery. This is a desired action when small quantities are sent to the oil/water separators. **PMA-RTU** is more of a surface dispersion than a sinking dispersion. This is more obvious in light **PMA-RTU**/oil ratio's. As the ratio's increase, the dispersion becomes more evenly distributed throughout the water column. For example, in a tank fire, **PMA-RTU** will extinguish the flames, but will eventually give way to the huge volume of fuel that sits below the surface. On a surface spill, the "spreading" of the vastly larger surface allows **PMA-RTU's** physical action to maximize vapor suppression and microemulsion formation.

PMA-RTU does not sink the hydrocarbon down, rather it "suspends" the fuel in the water phase. Limit the area for dispersion and you limit the area for separation of molecules. For example, if I have a gallon of water in a jar and a gallon of water on the ground I have two dramatically different dispersion areas.

When application ratio's are attained, the mixture's vapor release is dramatically decreased thus attaining unparalleled burnback resistance.

Petroleum Mitigation Agent is a liquid ready to use product that will encapsulate spilled hydrocarbons such as gasoline, diesel fuel and lubricants upon proper application.

PMA will pull hydrocarbons out of asphalt or concrete.

PMA will leave the surface non-slip and hydrocarbon free.

PMA and Biomatrix can help you and your company be Clean Water Act Compliant.

Always follow State and Federal guidelines and approvals before using in sewers.

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