

BlueFusion Solution

Degreasing / Hydrocarbon Removal / Remediation Chemistry

Summary

BlueFusion™ Solution is a non-flammable, non-toxic, water-based, proprietary blend of non-ionic ethoxylated octylphenolic surfactants that has been specifically engineered as a cleanup/mitigation agent for a wide range of hydrocarbon products. BlueFusion Solution has been shown to be effective for quickly and effectively suppressing or completely eliminating VOCs, LEL's, benzene and low levels of H₂S and mercaptans in open or confined spaces.

BlueFusion Solution has been used for cleanup of hydrocarbon spills and soil remediation. In these applications, BlueFusion Solution effectively conditions (physically) the hydrocarbon such that the microbes that naturally occur can more readily consume it. It turns hydrocarbons into a nutrient source for the microbes. When sufficiently mixed with hydrocarbon and water, the BlueFusion Solution forms a homogeneous solution of hydrocarbon, BlueFusion Solution and water, which is very stable.

BlueFusion Solution is a concentrated product that readily biodegrades.

Physical Properties

Product name	BlueFusion Solution
Physical form	Clear liquid
Color	Colorless unless dyed
Specific gravity (water = 1)	1.028 +/- .01
Solubility in water	100%
Freezing/melting point	NE
Flash point (°F)	>200°F
pH	8.5 +/- .25
Reportable quantity (RQ)	None

Field Mixing Procedures

Mixing Concentrates

BlueFusion Solution is usually delivered as a concentrate and must be diluted with water to work properly. Cleaning solutions can be formulated by premixing or eduction. It is not necessary to provide high shear agitation when preparing a batch of cleaning solution since BlueFusion Solution is 100% soluble in water. It is recommended that when preparing the cleaning solution you first add the water into the mix container and then follow by the addition of BlueFusion Solution. This will minimize foaming as the BlueFusion Solution and water form a homogeneous solution.

For premixing, the following procedure may be used:

1. Add the correct amount of water to the container.
2. Depending on the desired strength, add the correct amount of BlueFusion Solution to the container.
3. If the final solution is not a consistent pink color, mild agitation may be required until a consistent pink color is achieved.

Quality Control Testing

There is no easy field testing procedure to monitor the concentration of active ingredients in the BlueFusion Solution formulation. Visually the color changes from rose color to lighter pink as the product is further diluted. Effectiveness can also be predicted by quantifying the amount of hydrocarbon that is to be picked up. By observing the effluent from the use of BlueFusion Solution, an adjustment in the cleaning solution concentration can be made. If it is observed that free oil is floating on the effluent solution, then the concentration should be increased.

Packaging and Storage

Commercially available in 5-gallon units, 55-gallon drums, and 330-gallon totes and bulk from Houston, Texas.

Material Requirements

For specific protocols and application rates, please refer to the product label or consult with the manufacturer or authorized distributor for additional guidance.

Equipment Cleaning & Parts Washing

BlueFusion Solution is very effective for equipment cleaning applications. BlueFusion Solution is used at light dilutions and has a significant “life of batch” as well as low foaming tendencies. The surfactants in BlueFusion Solution desorb and micro-emulsify grease and oil contamination and separate it from solids (metal shavings, grit, etc.) allowing them to settle without accumulating oily sludges. These factors make BlueFusion Solution ideal for spray wash systems as well as dip/agitating equipment. Some agitation or circulation of the fluid is required for thorough cleaning. For equipment cleaning applications, BlueFusion Solution is normally diluted to a 12.5% solution with water.

Soil Remediation

Calculate the volume of hydrocarbon contained in the contaminated area. It is important to determine accurately the depth of oil penetration into the soil. It will be important to agitate the soil to just below the depth of penetration. Once the estimate of hydrocarbon is known, the amount of the normal dilution of BlueFusion Solution for soil remediation is 8 parts water to 1 part BlueFusion Solution (12.5% solution). Mix the final solution to be used to treat the area into the soil thoroughly. Depending on the nature of the soil, this mixture should be mixed until consistent. This mixing can be accomplished using a metal rake or power roto-tiller. However, larger jobs may require a tractor, skidsteer with tiller attachment, or other equipment.

Once mixed, the naturally occurring bacteria in the soil will begin to consume the hydrocarbon, which has been put into a form that can be quickly consumed. The remediation process normally occurs over 4 to 12 weeks. Samples can be taken and analyzed for Total Petroleum Hydrocarbons (TPH) to track the progress of the remediation. If the TPH were to appear to stabilize and not continue to decline, a second application of BlueFusion Solution may be required.

Note: It can be helpful, but not required, to add a highly soluble, high nitrogen fertilizer such as Miracle Grow or Sam’s Choice to the first treatment of the BlueFusion Solution solution.

The addition of bacteria is not typically required. The BlueFusion Solution solution will stimulate the activity level of the naturally occurring bacteria.

In the fall and winter, it helps to expedite the job if the treatment cell is covered with plastic between treatments. This tends to hold in heat and generate additional moisture.

Keeping the soil moist is an integral part of the clean up.



Before treatment



One week after treatment



Two weeks after treatment



Four weeks after treatment

Material Requirements

Degreasing & Cleaning of Tanks & Equipment

BlueFusion Solution is effective for the degreasing and cleaning of all types of petroleum storage tanks. For small tanks of less than 50,000 gallons, BlueFusion Solution should be utilized through a power washer normally at a dilution of 12.5% depending on the type of product within the vessel and the degree of contamination. Typically for flammables, a more concentrated solution is utilized to completely agitate the tank residue and to scour the wall of the vessel prior to and during pump out. Lower dilutions may be utilized for products not representing a vapor hazard. BlueFusion Solution is also effective for reducing H₂S, Benzene and other VOC's.

Tank Bed Remediation

A common and effective means of mitigating the vapor hazard and remediating the tank bedding is to utilize a "flushing and recovery" technique with a diluted solution of BlueFusion Solution. Typically a 12.5% solution of BlueFusion Solution and water is utilized in a batch process to treat the impacted portions of the tank floor area. Simply perforating the affected area with a "buster" or hole saw and allowing the BlueFusion Solution solution to flood the affected bedding will eliminate immediate, and future, recurrences of vapor generation. The process also serves to remediate the contamination by flushing entrained hydrocarbon out of the bedding for recovery and disposal, or re-processing. If necessary, the entire sub-floor area may be treated by saturating the zone of contamination and flushing the fluid to the sump, or other collection point, and recovering the rinsate for disposal. Depending upon the severity of the leak, and the resultant degree of subfloor contamination, the BlueFusion Solution solution can be applied so as to simply saturate the bedding material, or it can be injected so as to flush and recover gross quantities of hydrocarbon.

Chemical Pipeline Pigging

As a general guideline, pump a slug of 12.5% solution and chase with water.

VOC Vapor Mitigation & Odor Control

BlueFusion Solution is typically applied at a concentration of 12.5% for vapor and/or odor control. Circulate the solution through a manway cannon or other device in order to provide sufficient saturation of the vapor space of the vessel that is being degreased. Check the vapor level of the tank before circulation begins. Circulate for about 2 hours and let the tank settle for about 2 hours. Check the vapor level in the tank. More than one circulation may be required for complete vapor suppression. The holding capacity of BlueFusion Solution may require sweetening or circulation with a fresh batch of product, depending on the amount of hydrocarbon vapors originally contained in the vessel.

Dilute BlueFusion Solution to a 12.5% solution. Coverage is normally at 3 to 4 square yards of surface area per gallon. Heavy contamination or mercaptan type odors may require a stronger solution of BlueFusion Solution.

Typically, 1 gallon of BlueFusion Solution concentrate diluted to a 12.5% solution will render up to 6 gallons of petroleum product nonflammable when properly applied.

Hard Surface Cleaning & Decontamination

For heavy soiled oil and grease on hard surfaces: Mix a 12.5% solution of concentrate with clean water in quantity sufficient to cover contaminated area. Apply generous amounts with spray applicator, or equivalent and allow reasonable time for the surfactants in BlueFusion Solution to penetrate and break down the hydrocarbon and grime. Once applied, solution may be scrubbed or brushed in for stubborn soiling. Next, apply BlueFusion Solution at a 3% solution through a power washer (heated power wash system will expedite the process). Flush residue to containment and dispose of as local rules apply.

For lightly soiled or freshly oiled surfaces: BlueFusion Solution may be used through any power washer or steam jenny currently available. Operating temperatures of 140 degrees F. will maximize effectiveness. Solution strengths of 12.5% should be used for decontamination duties. For small applications, a 12.5% solution (8 parts water and 1 part product) may be applied with a small pump sprayer and scrubbed or brushed into surface.

Surface Washing & Shoreline Cleanup

Dilute BlueFusion Solution to a 12.5% solution. On small spills, apply with pump sprayer or similar device. Cover entire spill, working in a circular motion, from outside perimeter toward the center of the spill. After application of BlueFusion Solution has been completed, agitate spill area with forcible stream of water or broom and rinse thoroughly.

On larger spills, specific applications and protocols should be developed taking into account local risks and considerations.

Contaminated Soil Excavation

In most cases a 12.5% solution of BlueFusion Solution will be adequate to keep vapor emissions within acceptable limits. The BlueFusion Solution solution should be applied evenly to the soil surface in sufficient quantity to dampen the surface well. As a general rule, 1 gallon of solution will cover approximately 4 sq. yd. of soil surface area.