

CytoSol™

Bio-solvent Surface Washing Product For Shorelines

Description:

CytoSol™ is a liquid bio-solvent intended for use as a surface washing compound to remove oil contamination from shoreline and shoreline structures. Cytosol™ contains no surface active agents or detergents and is 100% based upon renewable (plant-derived) solvent. The product DOES NOT CONTAIN petroleum-derived ingredients.

Physical Properties:

Form	Amber Liquid
Density	7.4 lb/gal.
Specific Gravity	0.8877 at 60°F
Viscosity	4.15 cst at 104°F
Pour Point	10 °F
Flash Point	360 °F
pH (10% Solution)	7.0 (neutral)
Solvents	Contains No Petroleum Distillates
Solubility	
Fresh Water	Insoluble (~ 14 ppm)
Brine Water	Insoluble (~ 7 ppm)

Application Method:

Cytosol™ is applied to oiled shorelines to extract and recover weathered petroleum by flotation with passive water deluges from header pipes or manual spraying. Remaining residual hydrocarbons are biodegraded, either passively by intrinsic bioremediation, or aggressively by enhancing the process with controlled amounts of nutrients and/or acclimated cultures of bacteria cultured from the site, when approved by local, state and federal agencies.

The Cytosol™ Process is most suitable for the treatment of heavily oiled shorelines that do not respond well to conventional treatments, or that are considered too sensitive for mechanical/pressure wash strategies. Prior to the application of Cytosol™, collection booms, oil skimmers, sorbent pads, or other appropriate containment and collection mechanisms must be deployed and operational.

Concentration / Application Rate:

Cytosol™ may be applied with a variety of spraying or washing equipment, depending upon the scale and type of shoreline to be cleaned. The product is to be used only neat and undiluted, for direct application to spilled oil. For large beach areas, Cytosol™ can be sprayed from water trucks or work boats equipped with pumps, hoses, and nozzles to

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deliver the product as an aerial spray. In smaller applications, Cytosol™ may be applied with hand sprayers or portable pumps to spray the product directly onto oiled surfaces. Dose rates will vary with the type and amount of petroleum spilled, the extent of weathering, and other site specific conditions, including temperature, porosity of shoreline, and residence time available to let the product contact the oil.

In general, the ratio of applied Cytosol™ to crude oil is between 0.5:1 and 1:1. The quantity of Cytosol™ applied should be approximately equivalent to the quantity of petroleum accumulated on the shoreline, or as required to dissolve and remove weathered oil. After application, the product should be allowed to penetrate and dissolve the weathered petroleum for at least one hour, preferably longer. Cold weather applications will require more contact time before initiating recovery. In tidal areas, it is advisable to apply the Cytosol™ as the tide is ebbing (receding) to maximize contact time. Trapped oil may continue to be released for several days, requiring that containment devices be left in place.

Conditions For Use:

The fouling shoreline types are appropriate for the use of Cytosol™: Coarse sand beaches where petroleum has penetrated into sand; marsh areas and vegetated wetlands where oil has coated plants and become trapped; concrete bulkheads, rip rap and piers that may have trapped oil; oiled pilings; gravel or cobble shorelines and rocky shores, where oil has become trapped in pockets; and public beaches, fisheries, hatcheries, river banks, and other sensitive or high impact sites. The Cytosol™ product has been field tested successfully for removing oil from mussel beds and intertidal zones, pilings and concrete rip rap. The Cytosol™ also proved effective in facilitating the removal of oil from the banks and vegetation along an oiled creek.

Shipping and Handling:

Cytosol™ is packaged and shipped in D.O.T. approved IBC tote containers or Bulk truck. Pails and drums not D.O.T. regulated. Refer to product label and the Material Safety Data Sheet to outline the proper handling of this product. As with any industrial chemical, keep out of reach of children and avoid prolonged contact with skin and eyes. In case of skin or eye contact, flush the exposed area with copious amounts of water.

Cytosol™ is listed within the EPA National Contingency Plan Product Schedule, March, 2010 edition.

Disclaimer:

Cytosol™ is on the U.S. Environmental Protection Agency's NCP Product Schedule. This listing does NOT mean that EPA approves, recommends, licenses, certifies, or authorizes the use of Cytosol on an oil discharge. This listing means only that data have been submitted to EPA as required by subpart J of the National Contingency Plan, 300.915.

Cytosol™ is a trademark of Cytoculture International, Inc.

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