



RemediAde™

All natural bio-remediation agent for treatment of hydrocarbon spills on soil and water.

RemediAde™ - The first choice for hydrocarbon bio-remediation

RemediAde™ is a highly-effective and eco-friendly, all natural and organic (non-chemical) solution that rapidly bio-remediates hydrocarbons in soil and water. RemediAde™ is easily applied to contaminated land and water in the event of spills or leaks of oils and hydrocarbons.

RemediAde™ successfully remediates

- Pipeline breaks and spills
- Storage tank overflows
- Oil contamination cleanup in marshlands and beaches
- Soil remediation at and around tank farms
- Wellhead clean ups
- Hydrocarbon dump yard soil remediation
- Refinery clean ups
- Creosote contamination



RemediAde™ effectiveness

Depending on the weight and amount of refining, RemediAde™ cleans up gasoline and diesel in 5-7 days, unprocessed crude oil in 2-3 weeks and refined oil in 2-3 weeks. In most cases, a total breakdown of the oil is seen by day seven.

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INTERNATIONAL
OILFIELD & INDUSTRIAL CHEMICALS

History of **RemediAde™**

RemediAde™ has been used by the oilfield, chemical and manufacturing industries for over 20 years. **RemediAde™** is cost effective and has been used in hundreds of hydrocarbon and salt water spill clean-ups in oilfield ops and at chemical plant facilities.

RemediAde™ is a blend of plant extracts and other organic substances designed to promote rapid insitu bacteria growth for bio-remediation of hydrocarbons. The unique process for production of **RemediAde™** extracts polysaccharides, enzymes, vitamins, hormones, polyuronic acids and humic acids all of which contribute to the rapid growth of bacteria that effectively assists in the bio-remediation of hydrocarbons.

RemediAde™ Application

The application rate of **RemediAde™** is determined by the amount of area to be treated, the level of contamination and TPH end results to be achieved. In low gravity oil spills, an additional surfactant is added to help bacteria to move through the oil spill more readily.

On water, the application process is customized based on water type, gravity of the spill fluids and specific spill factors. Instructions are attached to the product containers.

Project Management Using **RemediAde™**

JDMV Holdings LP offers remediation project design and technical support services to the end-user client and/or engineering consulting firms involved in the clean up process. Additionally, infield support and turnkey project management is now available on-site for a fee.

The project consulting and labor service offered by JDMV is intended to aid the end user with the application of **RemediAde™** in the most effective and efficient manner. Examples include: training field crews on proper remediation techniques, overseeing difficult product applications and technical consulting based on operating conditions of the site being remediated.

RemediAde™ Clean Up Cases

Hydrocarbon Spill



Post Spill



2 Weeks Later

Pumping wellhead spill. The spill covered a large area with the contamination seeping 2"-3" deep into the soil. The polluted area was disked and **RemediAde™** was applied at .38 gallons per cubic yard. Initial TPH contamination was 54,426. After two weeks the treated area had a TPH of 9,895, and after four weeks the TPH was reduced to 14 with no odor of hydrocarbons.

Brine Spill



Post Spill



7 Weeks Later

Waste water disposal site. Overflow from pit created major brine spill. The spill area was disked and treated with **RemediAde™** at an application rate of .14 gallons per cubic yard. Following treatment, the area was seeded with Bermuda grass. Image shows recovery results after just seven weeks.

Hydrocarbon and Brine Spill



Post Spill



2 Months Later

Tank battery spill. This incident involved crude oil and brine that polluted the well site location. The contaminated site was treated with 55 gallons of **RemediAde™** per acre. Following treatment, the site was seeded with Bermuda grass. Image shows recovery results after only two months.



RemediAde™ Hydrocarbon Clean Up Clients

This is just a sample of the hydrocarbon clean up cases. RemediAde™ has successfully cleaned up hundreds of oil and hydrocarbon spills over the past 20 years. The scope and scale specifics differ from case to case, but the effectiveness of RemediAde™ is highly consistent. For 20 years, RemediAde™ has performed exceptionally for all clients, large and small.



- Used for hydrocarbon spills
- Used for hydrocarbon pit closure clean ups
- Houston and Katy, Texas area clean ups
- Client since 1999



- Used for hydrocarbon spills
- Remediated creosote contamination in waterways
- Cleaned up burial waste site at plant
- Reduced 22,000 TPH to <100 TPH
- Plant located in Beaumont, Texas and



- Used for hydrocarbon spills
- Used for saltwater spills
- Used for oil tank overflow spills
- Multiple clean ups in Matagorda County, Texas
- Client since 2002



- Used for hydrocarbon spills
- Used for oil leaks and spills
- Used on land and coastal areas in south Texas
- Client since 2006

Texas Gulf Sulphur

- Cleaned up hydrocarbons, diesel and chlorinated hydrocarbons
- Site cleanup exceeded 10,000 cubic yards
- Reduced 75,000 TPH to <100 TPH
- Client since 2000



- Lead oil spill response product used in overflows, leaks and post storm clean up requirements
- Successfully cleaned up crude oil spills
- Cleaned up hydrocarbon spills
- Remediated multiple site locations in Texas
- Client since 1990



- Oil spill clean up
- Pipeline break clean up
- Used for spill cleanups in Texas
- Client since 2008

RemediAde™ is NCP Listed by the EPA



RemediAde™ 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 RemediAde™ 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, 40 CFR Section 300.915.

TECHNICAL PRODUCT BULLETIN: B-66
USEPA, OIL PROGRAM CENTER
LISTING DATE: JUNE 08, 2011
"REMEDIADE™"
(aka, SP 7010)

NAME, BRAND, OR TRADEMARK

REMEDIADE™

Type of Product: Bioremediation Agent (Nutrient Additive)

SHELF LIFE

Shelf life of product unopened is 2 years. If the container has been opened, but uncontaminated and is resealed properly, the shelf life is 1 year after initial opening.

RECOMMENDED APPLICATION PROCEDURE

1. Application Method: Product may be applied to any surface for removal of hydrocarbons. For treatment of large areas, properly diluted product may be applied by spraying with a pressure washer, portable fire pump or any other suitable pump with non-chlorinated fresh water or salt water. Application can also be made with normal spray equipment via a 1" or larger hose and a spray nozzle, similar to a fire nozzle. Inductor setups, water trucks as well as fire or other emergency response equipment may be used. Aircraft application is also effective in covering large areas or contaminated water.
2. Concentration/Application Rate: For in-situ soils, till the REMEDIADE™/water mixture onto the contaminated area. Soil treatment rate guidelines are 1 gallon of concentrate for 30 cubic yards of soil for each 20,000 TPH contamination level. Example: 40,000 TPH level would be 2 gallons per 30 cubic yards. Clay soils may take more product and sandy soils may take less. After the treatment rate is established, apply 1/3rd of the product mixture on the first day, wait 5 to 7 days and apply the second 1/3rd of the product mixture, wait another 5 to 7 days and apply the final 1/3rd of the product mixture. During each of the three applications apply 1/2 of the product mixture to the affected soil. Till or blade in this application before applying the second 1/2 of the product mixture. This will help the product get good coverage and disperse well into the soil. In the event of oil spills on water, treatment guidelines are 1 gallon of concentrate per 30 square foot of surface area. After the treatment rate is established, apply 1/3rd over the area and wait 5 to 7 days and apply the second treatment. Then wait 2 to 5 days and apply the third treatment. Light gravity oils may take more. When spraying the product over oil, good agitation of the contaminant with the product can only help. This helps add to surface contact and aids in the bioremediation process. Salinity of the water will not make a difference in the effectiveness of the product.
3. Conditions for Use: Product must be mixed with non-chlorinated water, but it can be used with fresh, salt or brackish water. Reapplication may be necessary in severely contaminated areas. Be sure to apply the product on three separate days, allowing time in between the days, this helps keep bacteria counts up at a more consistent level through the process. Adding all the product in one treatment will only prove to waste product and slow the effectiveness of the overall remediation process.

TOXICITY AND EFFECTIVENESS

a. Effectiveness:

Bioremediation Agent Effectiveness Test (40 CFR 300.900),
Federal Register September 15, 1994:

Summary Data Table

DAYS	PRODUCT	TOTAL MEAN ALKANES (ppm)	RED% 28 DAYS	TOTAL MEAN AROMATICS (ppm)	RED% 28 DAYS
0	CONTROL	255,568	0	10,822	0
	NUTRIENT	255,414	0	10,821	0
	PRODUCT	245,168	0	10,816	0
7	CONTROL	244,841	0	10,920	0
	NUTRIENT	215,169	0	9,963	0
	PRODUCT	79,688	0	9,393	0
28	CONTROL	21,469	91.6	9,067	16.2
	NUTRIENT	4,198	98.4	7,908	26.9
	PRODUCT	2,404	99.0	607	94.4

Results of Gravimetric Analysis:

Percentage (%) Decrease in Weight of Oil on Day 28

Control: 0.0%

Nutrient: 17.8%

Product (BET BIOPETRO): 36.0%

b. Toxicity:

NA

MICROBIOLOGICAL ANALYSIS

The product is a nutrient additive and does not contain microbiological cultures or enzyme additives.

1. Listing of each component of the formulation by chemical name and percentage by weight: CONFIDENTIAL

2. Optimum storage conditions:

Temperature: 40°F to 98°F

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