

Description:

M.X. #1 is a proprietary blend of bacteria, nutrients and washing agents. The product is effective in removing surface oil stains in a relatively short period of time (normally within hours). After removal from the surface, **M.X. #1** quickly biodegrades the displaced contaminants.

Directions:

For applications on oil spills where there is heavy accumulation of oil and grease using any power flushing device that would create heavy agitation. Flush until clean.

Dilutions:

M.X. #1 is a concentrate and may be diluted as much as 8 to 1 with water. However, on direct oil spills, the product should be used at a 2 to 1 dilution.

Features:

- Rapidly degrades oil and oil spill components.
- Available in easy-to-apply liquid form.
- Tolerates concentrations of hydrocarbons that are normally harmful to most micro-organisms.
- Safe to use.
- Natural and ecologically sound approach to surface cleaning.

Advantages:

- Visual results within minutes.
- No removal or replacement of contaminated material (ballast, soil, concrete) is necessary.
- Biodegrades oils above and below ground surface.
- Cleans oily equipment and vehicles, while biodegrading washed contaminants.
- Eliminates the need to use harsh and dangerous chemicals.

BLUE STAR

M.X.#1

1-800-221-4555

Applications:

Oilfield, waterways, dock areas, refineries, papermills, marinas, coal mining, construction, equipment cleaning, manufacturing plants, transportation, utilities, sewage treatment or anywhere the waste contamination of water and hydrocarbons are a problem.

Equipment Cleaning:

M.X. #1 will effectively homogenize and solubilize grease and oil accumulations on all surfaces and make all run-off waste biodegradable.

Storage Tanks:

M.X. #1 removes oil and mud accumulations, including mastic grease, on interior and exterior walls of tanks, without affecting metal, rubber, or plastic. It can also be used for bilge cleaning. Grease and mud particles will no longer adhere to one another and are completely bio-degradable. As little as 15 gallons will clean and bio-degrade approximately 50 gallons of heavy oil and mud.

Cautions M.X. #1:

Special protective clothing not required; gloves are recommended. If contact with eyes occurs, flush with running water. Keep away from children.

Ultimate Disposal:

Biologically degrades removed contaminants, transforming them into CO₂ and water within days.



BLUE STAR INDUSTRIES
CORPORATE SALES OFFICE:

P.O. Box 188, 8 Tree Line Drive
Hopewell Junction, NY 12533
N.Y. 1-845-226-4141

PLANT FACILITIES

Broussard, Louisiana • McKeesport, Pennsylvania

INTRODUCING A BLUE STAR EXCLUSIVE: M.X. #1

M.X.#1 IS A DISPERSANT THAT HOMOGENIZES OIL AND GREASE FROM WHEREVER IT MUST BE REMOVED. THIS NEW FORMULA ENABLES OIL AND WATER TO MIX. M.X. #1 WORKS WITHOUT THE DANGERS AND CONTAMINATION OF INEFFECTIVE DETERGENTS, DEGREASERS AND EMULSIFIERS. REMOVES OIL AND GREASE POLLUTION; MAKES OILS AND GREASES BIODEGRADABLE.

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Directions:

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- ☐ Biodegrades oils above and below ground surface.
- ☐ Cleans oily equipment and vehicles, while biodegrading washed contaminants.
- ☐ Eliminates the need to use harsh and dangerous chemicals.

Benefits:

- ✓ **Fast** – quickly removes visible oil stained areas (soil, ballast, concrete, machinery). Results can be achieved within hours.
- ✓ **Ultimate disposal** – Biologically degrades removed contaminants, transforming them into CO₂ and water within days.
- ✓ **Lower operational costs** – reduce or eliminate the need for harsh and expensive chemicals.
- ✓ **Lower labor costs** – Eliminate the need to use conventional and labor intensive ballast treatment methods.
- ✓ **Better looking surfaces** – Eliminate ugly oil stains naturally and safely.

Equipment Cleaning:

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Storage Tanks:

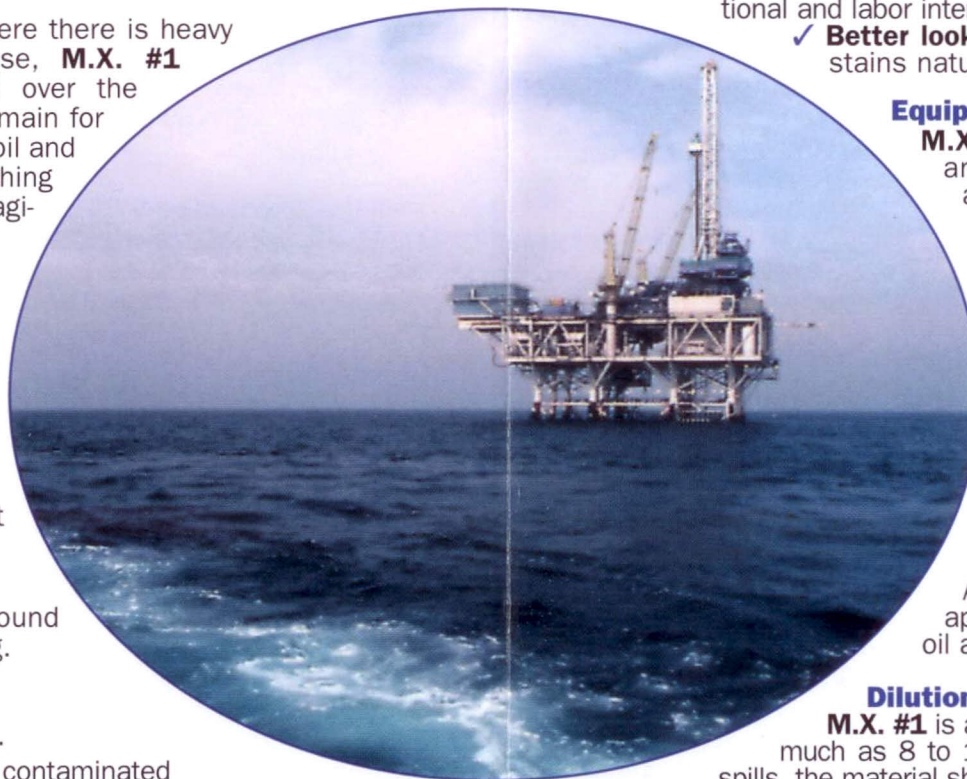
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Dilutions:

M.X. #1 is a concentrate and may be diluted as much as 8 to 1 with water. However, on direct oil spills, the material should be used full strength.

Applications:

Waterways, dock areas, refineries, papermills, marinas, coal mining, construction, equipment cleaning, manufacturing plants, transportation, utilities, sewage treatment or anywhere the waste contamination of water and hydrocarbons are a problem.



THE NEED EXISTS IN ALL INDUSTRIES FOR AN ECONOMICAL METHOD BY WHICH OIL CONTAMINATION CAN BE REMEDIATED. RESEARCH HAS SHOWN THAT WHEN DONE CORRECTLY, PROBIOLOGICAL REMEDIATION TECHNOLOGY IS THE MOST PRACTICAL AND COST-EFFECTIVE METHOD AVAILABLE AFTER MANY YEARS OF TESTING, BLUE STAR HAS BEEN SUCCESSFUL IN ACCOMPLISHING COST REDUCTIONS, AS WELL AS A VERY EFFECTIVE ALTERNATIVE TO OTHER PROCESSES IN EXISTENCE TODAY.

WHAT IS "PROBIOLOGICAL REMEDIATION"?

Probiological Remediation Technology (PRT) is a very cost-effective bioremediation method that is gaining in popularity in oilfield, industrial and marine applications.

It uses organic compounds and nutrients to promote the detoxification and repair of troubled environments, and works well in many applications. PRT has been successfully applied toward the clean-up of tank bottom materials, crude oil, disposable pits, waste oil pits, surface and ground water contamination, drilling muds, refinery wastes and other environmental problems.

Problems associated with organically based waste, such as petroleum products, are efficiently reduced or completely eliminated from the environment through biological processes. Degradation of petroleum products by micro-organisms involves converting energy stored as petroleum hydrocarbon chains into energy forms such as water, carbon dioxide, cellular bio-mass, organic matters, organic acids, and other organic compounds and elements. However, this process not only involves biological reactions, but also many non-biological or abiotic reactions as well.

Probiological Remediation processes utilize beneficial organic materials to create an environment in which micro-organisms can perform their natural remediation functions. These functions can be referred to as Abiotic Processes, whether they be chemical changes or other controlling factors, such as temperature, moisture or aeration. As a result, an environment is promoted that supports the growth of contaminant-degrading organisms.

Environments are detoxified through the use of organic buffering agents, highly available organic microbial residues, and elements which are required for proper environmental control. Toxic compounds are buffered or neutralized by the probiological constituents, enabling the target organisms to better attack and degrade harmful compounds in a more controlled environment.

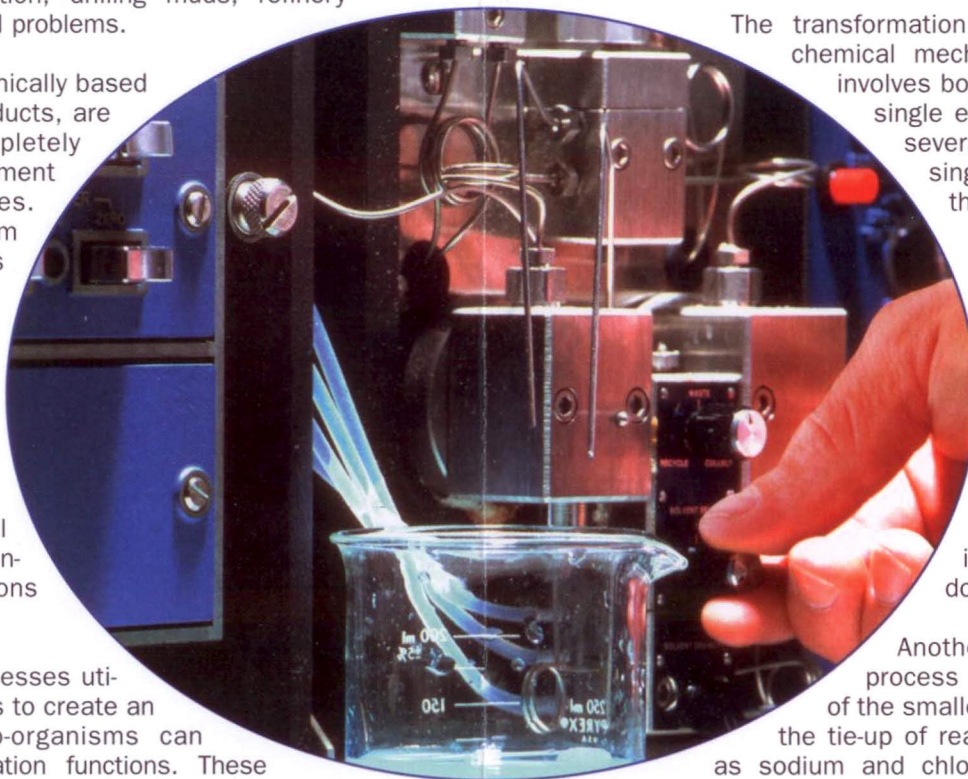
Probiological materials provide valuable nutrients and oxygenated compounds which, under toxic conditions, may be unavailable for microbial assimilation. These natural substances are comprised of complex humic materials loaded with 6 and 5 carbon ring structures, oxygen, and oxygen-hydrogen groups. They assist in the degradation and mineralization of petroleum-based chemicals abiotically and biotically, transforming complex organic molecules and carbon chains into more favorable molecules for microbial degradation.

The transformation is accomplished partly by a chemical mechanism called chelation, which involves bonding an organic compound to a single element or another compound at several contact points rather than at a single point. As a molecular level, this is very beneficial.

It has been observed that refined petroleum products actually go through an abiotic transformation in which the organic complexes added to petroleum polluted environments lengthen hydrocarbon chains and remove side chains from alicyclic and poly-aromatic carbon chains, allowing for easier microbial breakdown of petroleum hydrocarbons.

Another feature of the complexing process is the decrease in volatilization of the smaller-chain hydrocarbons, as well as the tie-up of reactive and harmful metals, such as sodium and chlorine. Because the hydrocarbon chains are lengthened (complexed with the organic compounds) the contaminant structure is less volatile and cannot readily escape into the atmosphere. Hydrocarbon side chains, which normally inhibit microbial degradation processes, are removed and complexed as well. Heavy metals are chelated or complexed to the organiccompounds.

The result is a complexed metal that cannot harm microbes because it has been entrapped by an organic compound. The task can be accomplished economically and practically, but industry must at least address environmental concerns and begin the process.



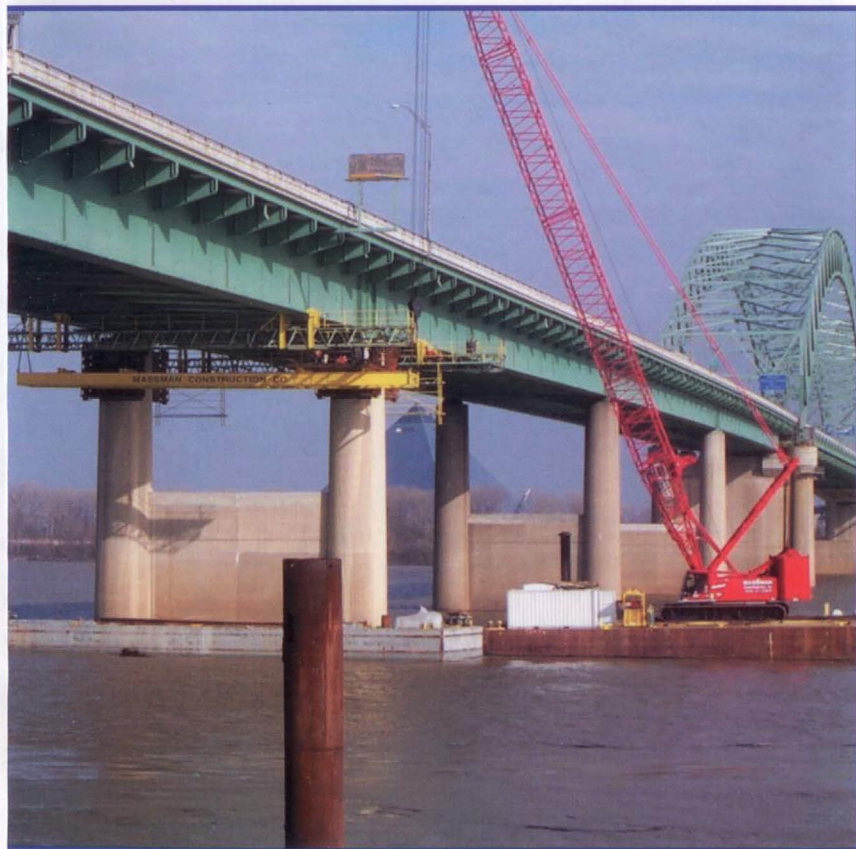
SOLUTIONS FOR A CLEANER WORLD



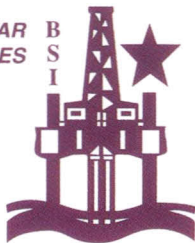
"We must find a way to clean up ... this hydrocarbon mess!"



"A Solution for Pollution!"



BLUE STAR
INDUSTRIES



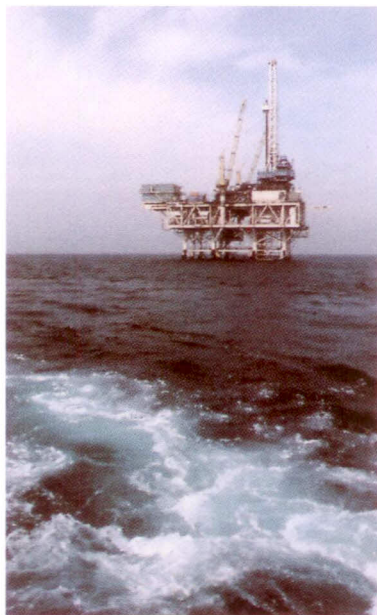
INTRODUCING A BLUE STAR EXCLUSIVE: M.X. #1

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**REMOVES OIL AND
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MAKES OILS
AND GREASES
BIODEGRADABLE.**



Description:

M.X. #1 is a new concept that homogenizes oil and grease in water. The grease and oil are then dispersed into such minute droplets that they can soon be destroyed by the action of bacteria, light, and oxygen. Though completing this breakdown of both oil and chemical takes approximately one to two days, the immediate remains of the oil are no longer in a form to contaminate streams, lakes, key ways, beaches, or coat the surface of the water.

Directions:

For applications on oil spills where there is heavy accumulation of grease, **M.X. #1** should be sprayed or poured over the affected area and allowed to remain for 5 minutes. Then flush away the oil and grease using any power flushing device that would create heavy agitation. Flush until clean.

Completion Fluids:

M.X. #1 will effectively homogenize the oils and greases of all petroleum, including all types of completion fluids such as oil base mud. The word to remember is "complexing." Oil and water are not supposed to mix but they can be chemically "complexed" which is the same thing.

Offshore Drilling Rigs:

M.X. #1 makes all run-off detergents drilling fluids, cuttings, completely biodegradable. Meets all offshore and Coast Guard regulations.

Key Ways:

For applications in the Key Way, **M.X. #1** may be sprayed or poured over the affected area, where there is natural agitation, or it may be introduced wherever needed and mechanically agitated with a power washer.

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Dilutions:

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**See for yourself that M.X. #1 is indeed a great
"Solution" for all your oil clean-up problems!**

**SPECIALISTS IN OILFIELD AND
POLLUTION CONTROL CHEMICALS**

CORPORATE & SALES OFFICE:
PO BOX 188 • 8 TREE LINE DRIVE
HOPEWELL JUNCTION, NY 12533

PLANT FACILITIES:
MCKEESPORT, PA
BROUSSARD, LOUISIANA

845-226-4141, 800-221-4555 • FAX: 845-227-6399

PRODUCT DATA

M.X. #1 Homogenizer and Dispersant

DESCRIPTION

M.X. #1 is a proprietary blend of bacteria, nutrients, and washing agents. The product is effective in removing oil stains in a relatively short period of time (normally within hours). After removal from the surface, M.X. #1 quickly biodegrades the displaced contaminants.

FEATURES

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- ☐ Available in easy to apply liquid form.
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- ☐ Safe to use.
- ☐ Natural and ecologically sound approach to surface cleaning.

ADVANTAGES

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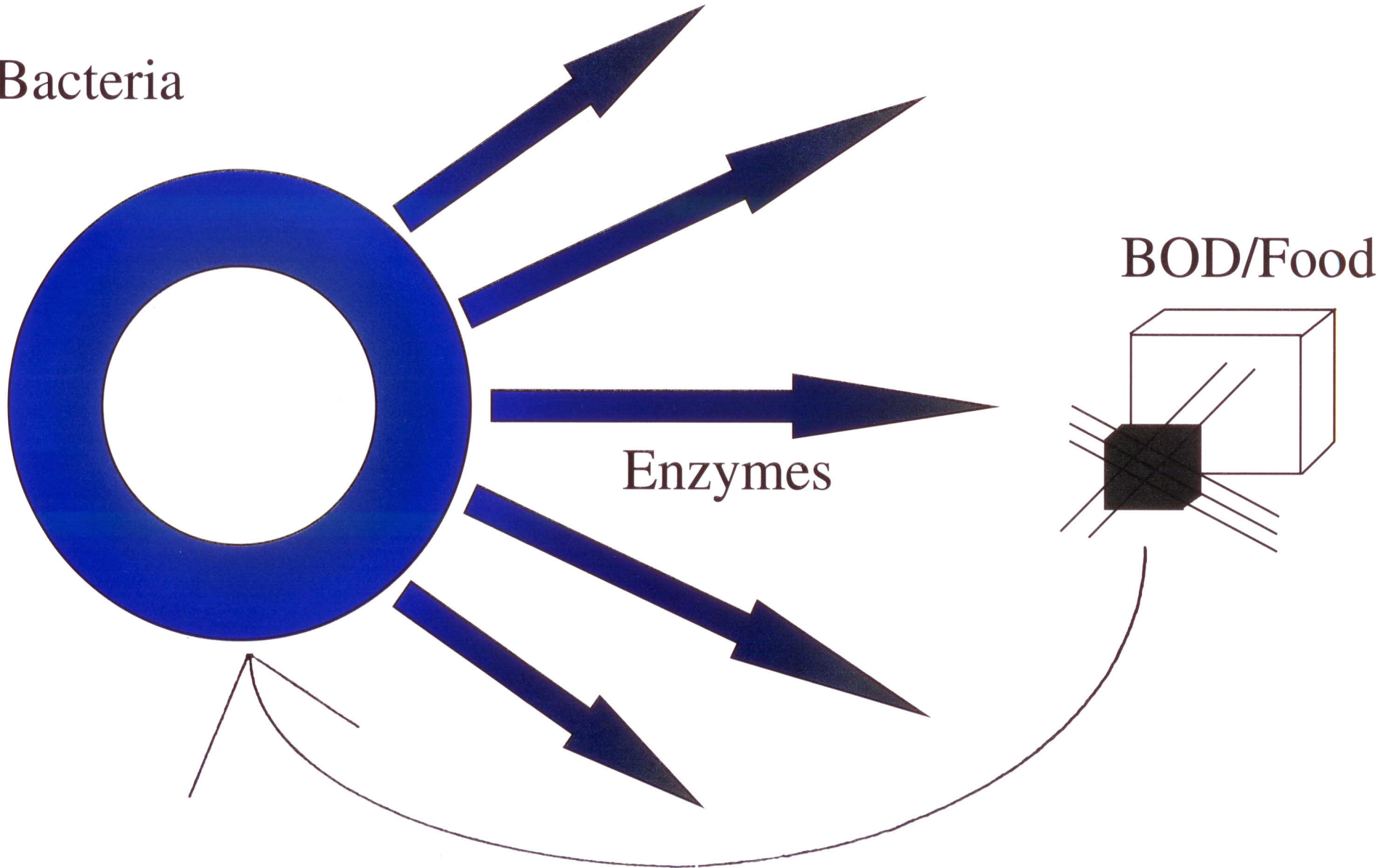
BENEFITS

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MX#1

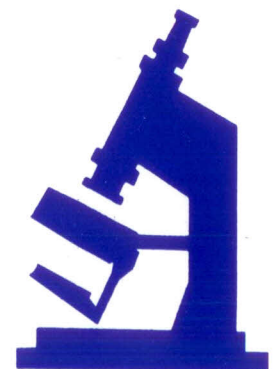
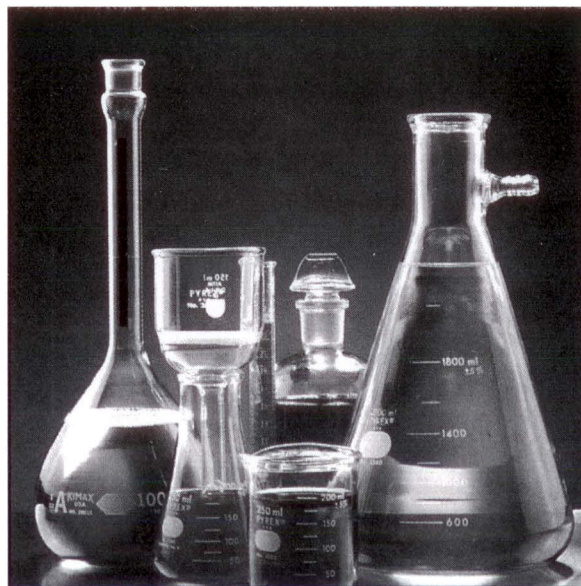
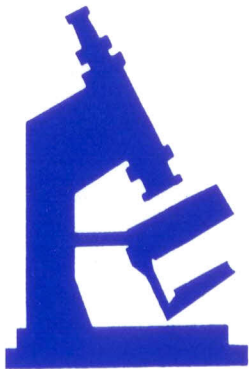
Bio-Enzymatic Action

Bacteria



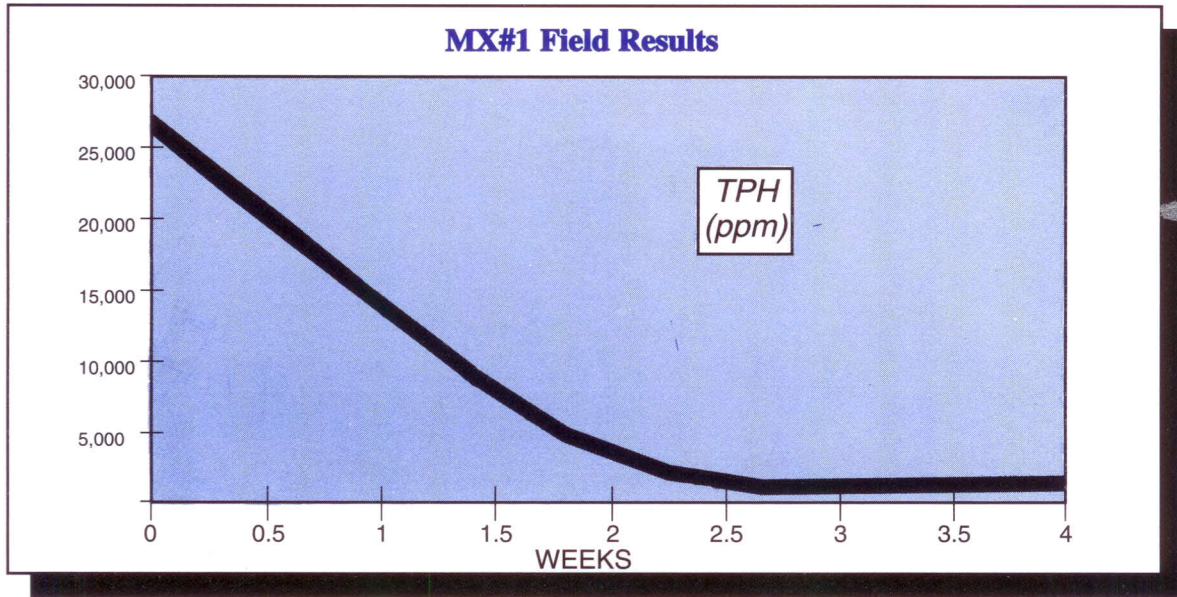
Understanding Bacteria-Enzyme Action

- * Bacteria and enzyme factories which assist in the removal of organics. Bacteria produce enzymes that convert organics to a form more readily available for digestion.
- * Enzymes break down and digest organic deposits and convert waste all the way to by-products of CO_2 and H_2O .



MX#1

Surface TPH Concentrations



TPH - Total Parts Hydrocarbon

MX#1 Field Testing Data

AREA	DATE	TIME	pH	NH3-N	0PO4	TPC	SPC	MOIS	TPH	%
Ballast (Sand)	8-16	zero							26,000	
	8-16	2 hrs							6,000	77
	8-30	2 wks	8.8	4	4	1.7EO5	4.2EO2	95	2,000	92.5
	9-16	4 wks	8.8	10	0	5.7EO4	5.7EO4	94	1,460	94.5
	11-8	12 wks	7.1	20	2	1.6EO5		98	1,410	94.7
Ballast (Clay)	8-16	zero							144,000	
	8-16	2 hrs							94,900	34
	8-30	2 wks	6.9	20	25	2.1EO6	5.6EO5	85	47,000	67
	9-16	4 wks	6.9	80	10	1.7EO6	8.9EO4	82	NS	

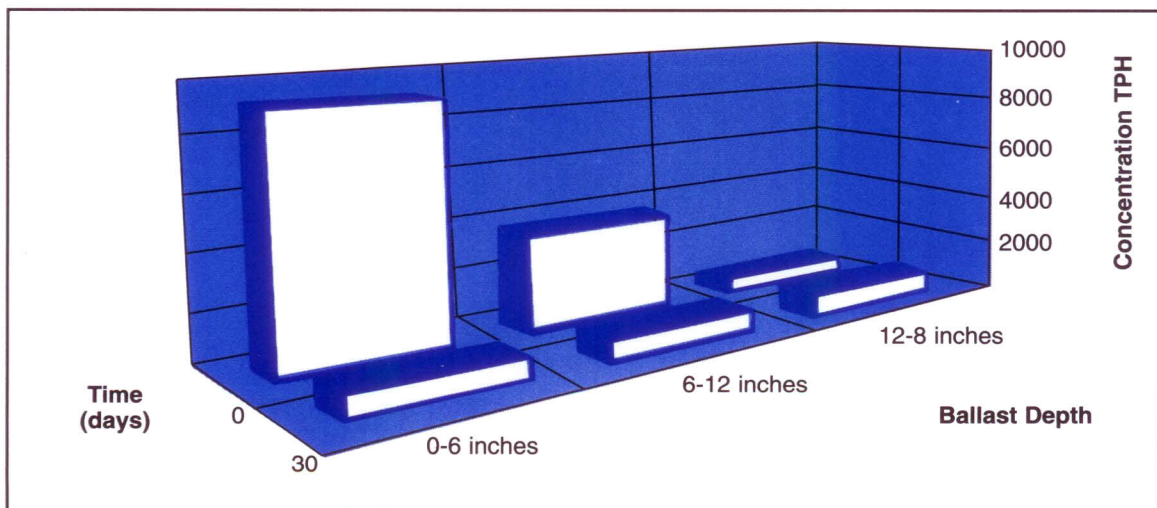
TPC - Total Plate Counts

SPC - Selective Plate Counts

NS - Not Sampled

Hard surfaces have been shown to have greater removal rates, in other field studies

MX#1 Subsurface Biodegradation



Note: Surface removal over 30 days is not associated with subsurface TPH increases, demonstrating TPHs are truly degraded vs. washed into the subsurface.

MATERIAL SAFETY DATA SHEET

M.X. #1	HMIS RATING	SCALE 0-4
OFFSHORE OIL		1 HMIS HEALTH
DISPERSANT HOMOGENIZER		0 HMIS FLAMMABILITY
		0 HMIS REACTIVITY
		B HMIS PERSONAL PROTECTION

SECTION 1 - IDENTIFICATION

BLUE STAR INDUSTRIES	EMERGENCY PHONE:	(800) 424-9300 Chemtrec
P.O. Box 188, 8 Tree Line Drive	OUTSIDE USA:	(202) 483-7616 Collect
Hopewell Junction, NY 12533	EFFECTIVE DATE:	January 8, 2013

TRADE NAME.....M.X. #1	CAS NUMBER.....Blend
CHEMICAL FAMILY.....Homogenizer/Dispersion	CHEMICAL FORMULA.....Proprietary

SECTION II - HAZARDOUS INGREDIENTS AND COMPONENTS

HAZARDOUS COMPONENTS	%	TLV(UNITS)	PROD. CAS #
SODIUM METASILICATE	7%		6834-92-0
TETRASODIUM SALT OF ETHYLENEDIAMINE	Conf.	PEL NONE AGCIH NONE	64-02-8
OPACIFER	1.2%	NO DATA	35209-54-2
CHELATING AGENT	2.3%	NO DATA	64-02-8
VIALE BACTERIAL CULTURES (largely water)	gt 75%	NO DATA	7732-18-5

SECTION #313 SUPPLIER NOTIFICATION

*Indicates hazardous ingredients which are toxic chemicals subject to reporting requirements of Section #313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

The chemical name, CAS #, and percent by weight information must be included in all MSDS copies and distributed for this material.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Specific Gravity (H ₂ O=1)	: 1.0	Boiling Point	: >200 Deg. C
Vapor Pressure (mm Hg)	: =Water	Melting Point	: N/A Deg. C
Vapor Density (Air=1)	: =Water	Evaporation Rate	: 1 (Water=1)
Percent Volatile (by volume)	: Nil	pH	: 8.4 – 8.7
Solubility in Water	: 99%		
Appearance: Light Green Liquid		Odor:	No Distinct Odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point - Non-Flammable (Method ASTM D-93)	
Flammable Limits: NA	Extinguishing Media: Carbon Dioxide, dry chemical, water.
Special Fire Fighting Procedures: None	Usual Fire and Explosion Hazards: None

This material is a water-based solution and should not burn. Use water spray to keep containers cool.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	None determined for this product.
ROUTES OF ENTRY	Inhalation> Irritant Skin? Irritant Ingestion? Irritant
HEALTH HAZARD	Acute vapors or liquid may be irritating to skin, eyes or mucous membranes.
CARINOGENICITY OSHA REGULATED? No	NTP? No IARC MONOGRAPHS? No
OVER EXPOSURE EFFECTS	Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact.
FIRST AID PROCEDURES	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. If affected by inhalation of vapor or spray mist, remove to fresh air. If swallowed, do not induce vomiting, get immediate medical attention.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY	Stable
CONDITIONS TO AVOID	None currently known
INCOMPATIBLE MATERIALS	Oxidizers or oxidizing materials
DECOMPOSITION PRODUCTS	From fire, smoke, carbon dioxide & carbon monoxide
HAZARDOUS POLYMERIZATION	Will not occur
POLYMERIZATION AVOID	None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL	In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.
WASTE DISPOSAL METHOD	Industrial waste. Follow state regulations.

Avoid temperatures above 160 F. and try to avoid freezing.

Precautions To Be Taken in Handling and Storing: Follow good housekeeping and hygiene practices to help prevent accidental exposure or ingestion.

Other precautions: Wash affected areas of body after using.

SECTION VIII - SPECIAL PROTECTION/CONTROL MEASURES

RESPIRATORY PROTECTION	None needed under normal conditions.
VENTILATION	Local exhaust.
MECHANICAL EXHAUST	Desired in closed places.
LOCAL EXHAUST	Recommended
PROTECTIVE GLOVES	Wear impervious gloves.
EYE PROTECTION	Use goggles if splashing is likely.
OTHER PROTECTIVE EQUIPMENT	HMIS personal protection; B: Safety glasses, gloves.
Other protective Clothing or Equipment: Non Work/Hygienic Practices: Wash hands and face before eating, drinking, or smoking after handling material.	

SECTION IX - SPECIAL HANDLING & REGULATORY INFORMATION

HANDLING AND STORAGE	No special storage requirements.
PRECAUTIONARY MEASURES	Do not use on toy, furniture or surfaces of other articles which might be chewed by children. Wash hands thoroughly after using and before smoking or eating. Use with adequate ventilation. Avoid prolonged or repeated contact with skin. Do not get in eyes.
HAZARD CLASS	Non-regulated
DOT SHIPPING NAME	D.O.T. Non-regulated – M.X. #1 Homogenizer/Dispersant
REPORTABLE QUANTITY (RQ)	None
UN NUMBER	None
NA#	None
PACKAGING SIZE	55 gallon drums, pails and bulk

FOOT NOTES

ND - NO DATA AVAILABLE

NA - NOT APPLICABLE

<= LESS THAN

>= GREATER THAN

Not subject to Proposition 65 labeling requirements. All non-biological ingredients are listed on TSCA inventory.

SARA TITLE III REPORTING REQUIREMENTS

SECTION 302 Reporting:	No
SECTION 304 Reporting:	No
SECTION 313 Reporting Required:	No
SECTION 312 Reporting Required:	No
CERLA Reporting required if above:	RCRA Reporting required: No

OTHER: Canadian WHMIS Classification: Class D2B D.O.T. Hazard Class: non Regulated

PREPARED BY: U.S. Testing Co. Inc. Analytical Services - Fairfield, NJ 07004

REVISED DATE: January 1, 2013

This product's safety information is provided to assist our customers in assessing compliance with health, safety and environmental regulations. The information contained herein is based on data available to us and is believed to be accurate, although no guarantee or warranty is provided by the company in this respect. Since the use of this product is within the exclusive control of the user, it is the user's obligation to determine the conditions of safe use of this product. Such conditions should comply with all federal regulations concerning the product. All materials in this product are produced in compliance with Public Law 94-469 (Also known as the "Toxic Substances Control Act of 1976").