P.Ø1

First Environmental Group J. J. Magana Corporation Martinez Industrial Services

MDW Industrial Services

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Facsimile Transmission

Wednesday, August 3, 1994

Attention:

Juliet Shin

Company:

ACDEH

Subject:

**Toxicity Data** 

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Sender: Dan Etheredge

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#### MOSCOW DEPARTMENT OF THE RUSSIAN STATE COMMITTEE FOR SANITARY SUPERVISION

Grafskiy pereulok 4/9, 129626 Moscow - Telephone 287-31-41

November 30, 1993, No. 2.1-14/873

To: R. Yu. Parik
General Director
"Tibet" Office for Ecological Problems

M. Ostroumovskala Street, 1-V 107014 Moscow

The Moscow Department of the Russian State Committee for Sanitary Supervision has reviewed your inquiry regarding the possible use of preparations of the UNI-REM family (developer: the Bio-Tech Service company, USA) to clean soil, waste waters, and waters in open reservoirs polluted with toxic hydrocarbons. The data from the laboratory analyses conducted November 11-19, 1993 confirm the effectiveness of the UNI-REM 800 and UNI-REM 900 preparations you submitted.

The sanitary and toxicological studies conducted confirmed that these preparations can be used safely for the purposes you stated.

Chief State Sanitation Physician of Moscow

[seal] [signature] N. N. Filatov



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## STATE COMMITTEE FOR SANITARY SUPERVISION OF THE RUSSIAN FEDERATION

### MOSCOW DEPARTMENT OF THE STATE COMMITTEE FOR SANITARY SUPERVISION

#### HYGIENIC CERTIFICATE

No. 2-1421

PRODUCT: Preparation UNI-REM 800 is authorized for use DEVELOPING ORGANIZATION: Bio-Tech Service Company (USA)

PRODUCER/SUPPLIER: "Tibet" Office for Ecological Problems (Russia)

STANDARDS DOCUMENTATION FOR DOMESTIC PRODUCTION, REQUIRED FOREIGN PRODUCTION DATA: Letter from the Environmental Protection Agency of the State of Alaska (USA) of January 15, 1993; Sanitary and Toxicological Report on the Preparation (Toxicological Laboratory, Moscow Department of the State Committee for Sanitary Supervision) of November 26, 1993.

HYGIENIC PROFILE OF THE PRODUCT: The preparation is non-irritating to skin and mucous membranes, and does not have skin resorptive or sensitizing effects.

SPHERE OF APPLICATION: To clean soil, waste waters, and water in open reservoirs chronically or accidentally contaminated with toxic hydrocarbons by stimulating active native biocenosis.

REQUIREMENTS FOR USE, STORAGE, TRANSPORTATION, AND SAFETY MEASURES: No special requirements.

This certificate is valid until November 30, 1998.

Chief State Sanitation Physician City of Moscow

[seal] [signature]

N. N. Filatov November 30, 1993

CONFIRMED
CHIEF STATE SANITARY
PHYSICIAN OF THE CITY OF
MOSCOW
[seal]
[signature] N. N. Filatov
November 26, 1993

# SANITARY AND TOXICOLOGICAL REPORT FOR THE BIOLOGICAL UNI-REM-800

UNI-REM-800 is a biological surface-active substance (broad fraction of lipopeptides), a compound of enzymes obtained from bacteria that are part of normal soil flora.

The preparation is used to clean soil and water both chronically and accidentally contaminated with toxic hydrocarbons by stimulating native biocenosis activity. UNI-REM-800 emulsifies and renders hydrophilic hydrophobic aliphatic hydrocarbon molecules, simultaneously rendering them accessible to a wide range of natural microorganisms.

#### **Toxicological Properties**

Considering the actual means of entry of the preparation UNI-REM-800 into the bodies of personnel working with it, we studied the following:

- 1. Danger of acute lethal poisoning by inhalation
- 2. Acute toxicity of the preparation when ingested
- 3. Cumulative effects of the preparation
- 4. Irritating properties of UNI-REM-800 to skin and mucous membranes of the eyes
- 5. Skin resorptive effect
- 6. Sensitizing properties
- 1. In 2-hour exposure of animals (white mice) in exsiccators under maximum saturation with preparation vapors, animal death was not observed. The behavior of the animals did not differ from that of the control group. After 14 days of observation the animals were killed and their organs were subjected to histological examination.

No specific changes in the internal organs different from the control group were observed. There is no real danger of acute lethal poisoning by inhalation under normal conditions.

2. In the acute test with single exposure by introduction of the preparation into the stomachs of white mice and rats in doses from 2,500 to 10,000 mg/kg, death and clinical manifestations of acute toxic poisoning of the experimental mice and rats were not observed.

In morphological studies of the organs of the animals subjected to intra-gastric introduction of the preparation UNI-REM-800, no changes differing from the control group were observed.

3. In repeated introductions of the preparation UNI-REM-800 into the stomachs of animals in sub-lethal doses, animal death was not observed.

The summary dose received by each animal by the end of the experiment comprised 40,500 mg/kg.

Histological examination of the internal organs of the experimental animals at the end of the experiments showed that the preparation UNI-REM-800 does not have cumulative properties, since no changes in the internal organs of the animals differing from the control were observed.

There is virtually no potential danger of incidence of chronic polsoning from long-term entry of the substance into the body.

#### 4. Effect on Skin and Eyes

With single and repeated applications of the substance under examination to the skin of rabbits, no inflammation was observed in the experimental animals.

One-time introduction of the preparation UNI-REM-800 into the eyes of rabbits by dropper did not cause any significant symptoms of irritation or inflammation in the eye environment.

Study of the skin resorptive effect in experiments on mice and sensitizing properties in experiments on guinea pigs and rabbits using generally accepted methods showed that the preparation UNI-REM-800 does not have toxic skin resorptive effects and does not cause a sensitizing effect in experimental animals.

#### TOXICOLOGICAL AND HYGIENIC CONCLUSIONS

The biological UNI-REM-800 is a product that is non-toxic and low-hazard (Class 4 hazard according to State Standard 12.1.007-76) in various hygienically significant modes of entry into the body.

This product does not have cumulative properties.

There is virtually no potential danger of incidence of chronic poisoning from the product UNI-REM-800 during long-term use.

The preparation is not irritating to skin and mucous membranes, does not have a skin resorptive effect, and does not cause a sensitizing effect.

The production and use of biological UNI-REM-800 may be permitted without establishing maximum permissible concentration levels (OBUV) for air in the zone of operations provided the sanitary-hygienic and sanitary-technical requirements stipulated for work in contact with low-hazard chemical preparations are observed.

Director of the Toxicological Laboratory [signature] Candidate of Medical Sciences

N. V. Zavialov

Analyst [signature]

A. K. Balavanova



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## STATE COMMITTEE FOR SANITARY SUPERVISION OF THE RUSSIAN FEDERATION

## MOSCOW DEPARTMENT OF THE STATE COMMITTEE FOR SANITARY SUPERVISION

#### HYGIENIC CERTIFICATE

No. 2-1420

PRODUCT: Preparation UNI-REM 900 is authorized for use

DEVELOPING ORGANIZATION: Bio-Tech Service Company (USA)
PRODUCER/SUPPLIER: "Tibet" Office for Ecological Problems (Russia)

STANDARDS DOCUMENTATION FOR DOMESTIC PRODUCTION, REQUIRED FOREIGN PRODUCTION DATA: Letter from the Environmental Protection Agency of the State of Alaska (USA) of January 15, 1993; Sanitary and Toxicological Report on the Preparation (Toxicological Laboratory, Moscow Department of the State Committee for Sanitary Supervision) of November 26, 1993.

HYGIENIC PROFILE OF THE PRODUCT: The preparation is non-irritating to skin and mucous membranes, and does not have skin resorptive or sensitizing effects.

SPHERE OF APPLICATION: To clean soil, waste waters, and water in open reservoirs chronically or accidentally contaminated with toxic hydrocarbons by stimulating active native biocenosis.

REQUIREMENTS FOR USE, STORAGE, TRANSPORTATION, AND SAFETY MEASURES: No special requirements.

This certificate is valid until November 30, 1998.

Chief State Sanitation Physician City of Moscow

[seal] [signature]

N. N. Filatov November 30, 1993

CONFIRMED
Chief State Sanitation Physician of the City of Moscow
[seal]
[signature] N. N. Filatov
November 26, 1993

# SANITARY AND TOXICOLOGICAL REPORT FOR THE BIOLOGICAL UNI-REM-900

UNI-REM 900 is a polyenzymatic compound that catalyzes a chain of biochemical transformations leading to the formation by natural microorganisms of oxidized assimilated products.

The preparation is used to clean soil and water both chronically and accidentally contaminated with toxic hydrocarbons by stimulating native biocenosis activity.

The commercial form of the preparation is a water-based solution or clear, needle-shaped crystals.

The preparation is not flammable, is water-soluble, and its use does not require special ventilation.

Use of this preparation causes hydrocarbons to be released and dispersed; initiates the break-down of the external shells of the hydrocarbons; and permits broad access to the hydrocarbons by natural bacteria, which are involved in the oxidation process. The hydrocarbons, which are rendered hydrophilic, are readily assimilated by native biocenosis organisms in the intermediate phase.

#### Toxicological Properties

Considering the actual methods of entry of UNI-REM-900 into the bodies of personnel working with it, we have studied the following:

the danger of acute lethal poisoning by inhalation;

the acute toxicity of the preparation when ingested;

its cumulative properties;

the irritant properties of the preparation to skin and mucous membranes;

skin resorptive action;

and sensitizing properties.

There is virtually no danger of acute lethal poisoning by inhalation under normal conditions.

In the acute test with single exposure by introduction into the stomachs of white mice and rats in doses of from 2,500 to 10,000 mg/kg of animal weight, death and clinical manifestations of acute toxic poisoning of mice and rats were not observed.

Morphological examination of the organs of animals subjected to inhalation and intragastric introduction of the preparation UNI-REM-900 identified no changes divergent from the control group of animals.

With repeated introduction of the preparation UNI-REM-900 into the stomachs of animals in sub-lethal doses, animal death was not observed. The summary dose received by each animal by the end of the experiment comprised 40,500 mg/kg of weight.

Histological examination of the internal organs of experimental animals at the end of the experiment showed that the biological does not have cumulative properties, since no changes in the internal organs of the animals different from those of the control animals were observed.

There is virtually no potential danger of incidence of chronic poisoning from long-term entry of the substance into the body.

Effect on skin and eyes. With single and repeated applications of the preparation UNI-REM-900 to the skin of rabbits, no inflammation was observed.

One-time introduction of the preparation UNI-REM-900 into the eyes of rabbits by dropper causes temporary tearing without inflammatory reactions in the eye environment.

Studies of the skin resorptive effect in experiments on mice and the sensitizing properties in experiments on rabbits showed that UNI-REM-900 has no toxic skin resorptive effects and does not cause a sensitizing effect among the experimental animals.

#### TOXICOLOGICAL AND HYGIENIC CONCLUSIONS

The preparation UNI-REM-900 is a non-harmful product (Class 4 hazard according to State Standard 12.1.007-76) for various modes of entry into the body.

This product does not have cumulative properties. There is virtually no potential danger of incidence of chronic poisoning by the product UNI-REM-900 during long-term use.

The preparation does not irritate skin, and essentially is not irritating to the mucous membranes of the eyes, nor does it have skin resorptive or sensitizing effects.

The production and use of the preparation of UNI-REM-900 may be permitted without establishing maximum permissible concentration levels (OBUV) for air in the zone of operations provided the sanitary-hygienic and sanitary-technical requirements stipulated for work in contact with low-hazard chemical substances are observed.

Director, Toxicological Division [signature] Candidate of Medical Sciences

N. V. Zavialov

Analyst [signature]

A. K. Balabanova