



Research - cleaning of brine contaminated with crude
iFacts not 2016909

OSEI NOTE: The laboratory that performed the test used the term dispersion even though you can clearly see the oil did not sink, dispersion in this reports really means molecular breakdown of the oil

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1 OVERVIEW

During operations that are performed after drilling a well or during repair, to prevent the well properly are operations where uses special fluid that will circulate in the well for control, cleaning, tamponade, cannonade, evaluation and completion. Once they return these fluids to surface, which have been contaminated with crude oil, especially in production testing and evaluation of well, is necessary to dispose or reuse these fluids that are generally pickles since they generate a high impact on the environment. Properties highly alkaline and high concentrations of organic salts pose a threat to vegetation and the environment. Usually these fluids once discarded can be treated by evaporation or dilution which requires large quantities of water for final disposition that does not impact the environment.

Is of great importance to recover part of the brines used since they represent an envelope cost in the process of completion of wells and to mitigate environmental impacts that can be generated, therefore intends by means of an organic compound based on molasses with an enzymatic effect that acts upon any hydrocarbon achieve clean contaminated pickles returned on completion in-situ processes , with what could reuse the pickles and especially to reduce the environmental impact and the costs of treatment and disposal of these special fluids.

Through a simulation with brine contaminated at different concentrations as it would happen in well in operations of completion and evaluation of wells are laboratory tests using a chemical compound of enzymatic action as cleaning agent is evaluates its efficiency to determine how they could use to reuse of fluids.

Two fluids are used for laboratory tests. 8.4 sodium Formate lpg and sodium Formate with NOBLOK 0.5% v/v and Guraldehido 0.5 lpb which are salts that are used most frequently as cleaning agent is used OIL SPILL EATER, which is a concentrated organic compound of catalytic action that denatures the natural organic substances such as oil decomposing them into carbon dioxide and water. (See annex 1.)

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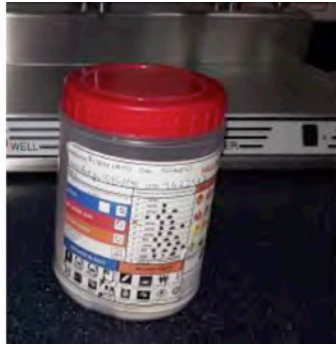
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2 OBJECTIVE

Check the efficiency of the use of chemical OIL SPILL EATER II CONCENTRATE product for the treatment and recovery of different types of pickles contaminated with crude oil, by varying the percentage of pollutant, performing laboratory tests with different concentrations of OIL SPILL, according to the recommendations of the supplier.

3. PROCEDURE

3.1 mixing 5 barrels of lpg 8.4 sodium Formate laboratory.



8.4 the picture No. 2 formiato sodio lpg, 7 lpb

3.1.2 contaminated brine with oil of different fields.

Used raw Campo Guando, 15, 78 and field castilla 132 which are of higher viscosity, by varying concentrations of crude oil in the brine to evaluate the efficiency of the treatment of cleaning of this product.

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Photo No. 3 8.4 sodium Formate lpg,**Photo No. 4 Crudo Campo Guando**

They were the tests in a laboratory or 350.5 barrel ml of brine, it was decided to replace the vessel precipitated by a container of greater volume that simulate the open tank or catch tank where usually return fluids contaminated Workover operations and tests well, to observe in detail the reaction and to have a greater surface for the dispersion of crude oil area.

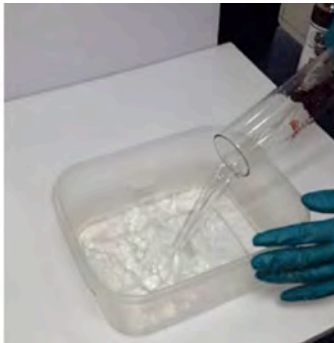


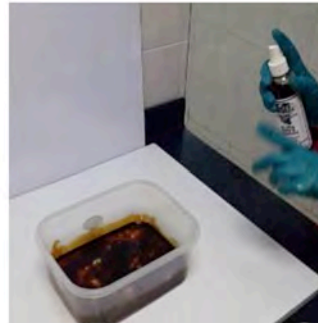
Photo No. 5 8.4 sodium Formate lpg,**photo No. 6 oil field under 5% v/v**

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**Photo No. 7
contaminated brine,**



**photo No. 8 addition of OSE II
uniform spray in the surface**



**Photo No. 9
immediate dispersal of traces of crude oil to the vessel walls**

3.1.3 variation of the concentration of trace amounts of crude oil in a barrel of brine laboratory samples.

To perform the same procedure with different raw's with higher viscosity index and is a qualitative and quantitative analysis of the efficiency of the OSE II in the cleaning of contaminated pickles, resulting in the following analysis.

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Photo No. 10
crude field Castilla 5% v/v



Photo No. 11
(Dispersion Molecular breakdown of the oil)
of crude oil towards the walls of the container
once added the OIL SPILL EATER II

Evidence that the OSE II effectively also works with raw of high-density, or heavy oil.
Qualitative analysis of reaction.

- It is observed that with the different percentages of pollution in contaminated pickles dispersion (molecular breakdown) of the crude reaction is immediate with low amounts of OSE II.
- Is added you OSE II by spray method using a splash and evenly spraying the surface area and also by directly applying the product in the form of drip about brine contaminated and
- moved OSE II concentrations for the cleaning of the brine and it was noted that once the enzyme reacts to add as much of OSE II generates a saturation and does

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not generate any additional effect, which indicates that once the required amount of product is minimal and generates an immediate reaction determined by the time that delay in generating the dispersion (molecular breakdown) of the crude oil.

· underwent the springers contaminated after some agitation is added the OSE II and was made by the movement of the fluid to mix new mind the crude on the surface but not in a way even if not in the form of capsules. According to the description of the product after a while and with reaction with air free crude oil becomes a gelatinous layer that has released CO2 and water forming an asphaltene with greater ease of separation.

Quantitative analysis of the reaction.

TRAZAS DE CRUDO	VOLUMEN DE OIL SPILL EATER II	OBSERVACIONES
0.1 % v/v	0.2 ml	The product is sprayed evenly according to the recommendations of the supplier and is immediately observed that crude oil is dispersed into the walls of the container
0.5 % v/v	0.4 ml	To be able to quantify the amount of Oil spill Eater II added is the product with syringe, while provider recommendation is to spray the product evenly over the contaminated area, either a surface liquid or on the ground, with the help of a hose pressurized, not in dilution.
1 % v/v	1 ml	Note that the dispersion (molecular breakdown of the crude oil) is immediate and is not necessary to add too much product
1.5 % v/v	1 ml	Molecular break down is immediate, crude moves towards the walls of the container, the dispersion of crude oil is instant

3.1.4 analysis of efficiency of OIL SPILL EATER II in the cleaning of brine polluting sodium Formate of 7 lpb, 0.5% v/v of Guraldehido and 0.5% v/v of NO BLOCK C
Qualitative analysis of reaction.

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- different tests were carried out in a laboratory barrel or 350.5 ml of brine, with additives ALDACIDE G and not BLOCK C. The effectiveness of the OSE II in the dispersion (molecular breakdown) of crude oil in the brine is evidencio, but using greater volume of the product, the reaction became a little slower.
- Once generated the dispersion (molecular breakjdown) of crude oil mixture is saturated by adding more product and does no further reaction.



Photo No. 12
sodium Formate with additives



photo No. 13 contaminated brine



Photo No. 14 addition of OSE II



photo No. 15 Dispersion of crude oil

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Foto No. 16. **Dispersión total del crudo**

Análisis cuantitativo de la reacción. Formiato de Sodio con aditivos

TRAZAS DE CRUDO	VOLUMEN DE OIL SPILL EATER II	OBSERVACIONES
0.1 % v/v	0.8 ml	Crude oil is dispersed (molecular breakdown) into the walls of the container, the reaction is a bit slower compared to the reaction with Formate without additives
0.5 % v/v	1.25 ml	Crude oil is dispersed (molecularly broken down), the sample is subjected to agitation and shown that they become to mix components, crude oil is evenly distributed on the surface of the brine.
1 % v/v	1.4 ml	Note that the dispersion (molecular breakdown) is immediate and is not necessary
1.5 % v/v	1.45 ml	Dispersion (molecular breakdown) is immediate, crude moves towards the walls of the container, the dispersion (molecular breakdown) of crude oil is instant

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3.2 FORMULACIONES

PRODUCTO	FORMIATO DE SODIO	FORMULACION 2 lpb
FORMIATO DE SODIO	7 lpb	7 lpb
NO BLOCK C		0.5 % v/v
GURALDEIDO		0.5 lpb

4 COMMENTS

- It was observed that all the tests occurred a dispersion of crude oil immediately.
- The OSE II in higher viscosity crude encapsulo crude oil generating a better separation of the mixture.

greater efficiency in the addition of the OSE II was observed by the method of spraying surface spraying product evenly and not applying it directly to the mix. In comparison of two contaminated sodium Formate brines, required increased volume for the dispersion of crude brine of sodium Formate with additives Is evident in all the tests with different trace concentrations of crude that OSE II dispersed crude oil in an effective manner, but it is recommended to evaluate subsequent dispersion separation method

- With the application of the OSE II concentrated organic evidence that it does not affect the properties of brines.

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6 ANNEXES

**ANNEX 1.
OIL SPILL EATER****Description OIL SPILL EATER OIL SPILL EATER II**

the product is an organic liquid product, molasses-based, accelerates biological reactions is a composite concentrate a multi biocatalitico enzyme that makes oil and other natural organic substances to break down rapidly and they are degraded to carbon dioxide and water.

OSE II is 100% biodegradable and has a shelf life of five years when stored at temperatures below 120 ° F. Freezing does not harm OSE II, cold temperatures however slow their speed of reaction somewhat.

The product is completely stable and reactive in a pH of 3.5pH to 11.7pH environment.



Photo No. 18 OIL SPILL EATER II

Applications

OIL SPILL EATER concentrate is used in oil spills, is used as a remedial agent before any kind of contamination with organic base compounds.

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When pollution is exposed to open air and time, a gelatinous layer can be formed. Higher hydrocarbon and more exposed to the elements, thicker will be the layer, over time this layer becomes asphaltene. ("asphaltene" brings together the components that remain as insoluble fraction after treating a mixture under certain conditions such as solvent, temperature, etc) It can be used for remediation for spills or contamination of the following classes of compounds. It is recommended to preferably apply it in concentrated form and spraying product evenly on the contaminated area

or most of the compounds of organic base

or most all types of gasoline

or diesel fuel

or numerous solvents

or crude petroleum

hydrocarbon compounds,

including crude oil

norte-pendiente Alaska

or pesticides

or Zylene

or toluene

and ethyl benzene

or Chrysene

or Hopane

or Hexadecane

or naphthalene

or Fluorene

or Fitano

or Phenanthrene

OSE II is a method of cleaning environmentally safe for spills of waste, since it uses their own processes of bioremediation of nature to effectively eliminate the hazardous materials

Risks to health and the environment.

OSE II is not toxic to humans, animals, plants and marine life. It is non-toxic, even if accidentally ingested and non- irritating to sensitive skin. OSE II contains no allergens known to cause skin, respiratory or other allergic reactions.

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