

Search for a Spanish Partner for a Bilateral R&D Project

Organization	
Date of Request:	3/3/2024
Company name:	Egyptian Petroleum Research Institute
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SECTION 1: Entity launching the partner search

(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)

Sector	Research & Development in the field of oil field chemicals specified for petroleum oil production.
Entity mission or core functions	Research and development; scientific research and publication; offering services, consultants, and analysis for petroleum sector; providing petroleum companies with oil field chemicals
Date of establishment	1974
Ownership (if public and traded, add stock exchange and ticker symbol)	Governmental entity affiliated the Ministry of higher education and Scientific Research
Total number of employees	1026
Number of employees in R&D	406
Key products sold or services provided	<p>I. Key products sold:</p> <p>H2S Scavengers Group</p> <ul style="list-style-type: none"> • H₂S Scavenger EPRI 710

- H₂S Scavenger EPRI 720
- H₂S Scavenger EPRI 730
- H₂S Scavenger EPRI 740
- H₂S Scavenger EPRI 750
- H₂S Scavenger EPRI 760

Demulsifiers, Dispersants & Cleaner Group

- Demulsifier EPRI 301
- Demulsifier EPRI 303
- Oil Spill Dispersant EPRI 910
- Heavy Duty Cleaner EPRI 920
- Heavy Duty Cleaner EPRI 930
- Cutting Fluid EPRI 950

Pour Point Depressants & Paraffin Dispersants Group

- Pour Point Depressant " EPRI-25 J "
- Pour Point Depressant " EPRI 2518 J "
- Pour Point Depressant " EPRI 65 J "
- Viscosity improver " EPRI 30 J "
- Asphalten dispersant " EPRI 40 J "

Biocides and SRB Group

- Biocide " EPRI-600 A "
- SRB Media
- Biocide " EPRI-610 A "
- Biocide " EPRI-610 D "
- Biocide" EPRI - 600 D "
- Biocide" EPRI - 600 B "

Corrosion and Scale Inhibitors Group

- " EPRI 400 CI " Oil Soluble
- " EPRI 510 CI " (four sour corrosion)
- " EPRI 511 CI " for (water soluble)
- " EPRI 421 CI " for Refinery
- " EPRI 414 SI " for Water Treatment
- Scale Inhibitor " EPRI 406 SI "
- Scale Remover " EPRI 407 SR "
- Scale Inhibitor " EPRI 408 SR "
- "EPRI 411 CI " for High Temperature
- Multi Functional " EPRI 4400 CI "
- Corrosion Inhibitor " EPRI 512 C "

	<ul style="list-style-type: none"> • Scale Inhibitor " EPRI 405 SCI " (for carbonate scale) <p>Chemicals for Water Treatment Group</p> <ul style="list-style-type: none"> • Dispersant " EPRI-201 " • Biocide " EPRI-205 " • Corrosion Inhibitor " EPRI-200 " • PH Improver " EPRI-450 " • Oxidizing Biocide " EPRI-210 " • Bio-dispersant EPRI -206 " <p>Other Chemicals Under Consideration</p> <ul style="list-style-type: none"> • Bio-fuel " EPRI-110 " • Bio-lubricant " EPRI-120" <p>II. Services provided</p> <ol style="list-style-type: none"> 1. PVT services center 2. Tank service center 3. Central analytical lab 4. Technical support & technology center 5. Surface protection center 6. Core analysis center 7. Asphalt & polymers services center 8. Chemical services and development center.
Entity core technical competences	<p>(120) Emeritus Professor (62) Professor (70) Associate Professor (99) Researcher</p>

	<p>(52) Assistant Researcher (3) research Assistant</p>
Key R&D programs and activities	<ol style="list-style-type: none"> 1. Development of flow assurance studies. 2. Flow in porous media. 3. Simulating of petroleum processes on field scale 4. Transportation in pipelines and fluid mechanics
Examples of accomplishments	<ul style="list-style-type: none"> - EPRI has signed 26 contracts with petroleum companies inside and outside Egypt. - EPRI has granted 9th rank in Scimago rank in MINA Region. - EPRI has granted 3th rank in Scimago rank in Egypt. - EPRI has international cooperation with <ul style="list-style-type: none"> Canada - Scientific Agreement with Sherbrooke University (2018) Azerbaijan - Memorandum of Understanding with Azerbaijan National Academy of Sciences "ANAS" (2018) South Korea - Memorandum of Understanding with Korea Research Institute of Chemical Technology "KRICT" (2017) - Memorandum of Understanding with Changwon National University "CWNU" (2017) Sudan - Scientific Agreement with Africa City of Technology (2017) - Memorandum of Understanding with Sudan University "SUSTECH" (2017)
Company strategic orientation	<ol style="list-style-type: none"> 1. Commercializing traditional scientific researches; to twin scientific research with industry. 2. Purifying the scientific climate: 3. Providing infrastructure for EPRI labs. 4. Supplying the workforce with needed

	<p>equipment for production.</p> <p>5. Insuring youth minds against intellectual suppression seeking for their creativity.</p> <p>6. Twinning EPRI with equivalent international institutes i.e. (cooperation with IFP)</p> <p>7. Modern research trends.</p>
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SECTION 2: Spanish Company Profile

(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)

Profile of ideal technology partner	
Core technological competencies and expertise	
Other essential qualifications (e.g.: ownership, track records etc.)	
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	
Interested areas of collaboration	We are seeking a company of oil field chemicals specially drag reducing agents and enhanced oil recovery

Specific R&D contribution you are seeking/offering

- Providing expertise for improvement of synthesized OFC to tolerate harsh reservoir conditions.
- Providing lab facilities and packing technology transfer.

- Here is the proposed Abstract
Title: Development of Oil Field Chemicals as Drag Reducing Agents and Enhanced Oil Recovery Candidates: A Comprehensive Review

Abstract:

The exploration and production of crude oil from reservoirs have been facilitated by the utilization of various chemical agents aimed at enhancing the efficiency of extraction processes. Among these, the development of oil field chemicals as drag reducing agents (DRAs) and enhanced oil recovery (EOR) candidates stands out as a pivotal area of research and innovation. This work presents a comprehensive review of the advancements in the synthesis, application, and performance evaluation of oil field chemicals designed specifically to mitigate drag in pipelines and improve oil recovery from reservoirs. The primary focus of this work is on the chemical compounds engineered to reduce frictional resistance within pipelines, thereby minimizing energy consumption during transportation and increasing throughput capacity. These drag reducing agents, ranging from synthetic polymers to biopolymers and nanoparticles, are examined in terms of their molecular structures, rheological properties, and effectiveness in reducing drag coefficients. Additionally, the mechanisms underlying their drag reduction capabilities, such as polymer chain stretching and turbulence suppression, are elucidated. Furthermore, this work explores the role of oil field chemicals in enhancing oil recovery from reservoirs through various mechanisms, including wettability alteration, interfacial tension reduction, viscosity modification, and reservoir sweep improvement. The synthesis methodologies, physicochemical properties, and performance evaluations of surfactants, polymers, nanoparticles, and



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other chemical agents employed for enhanced oil recovery are critically analyzed. The work also discusses the challenges and opportunities associated with the development and application of oil field chemicals as DRAs and EOR candidates, including environmental considerations, economic feasibility, compatibility with existing infrastructure, and regulatory frameworks. Moreover, future research directions and potential innovations in this field are outlined to address current limitations and unlock further efficiencies in oil extraction processes.

In conclusion, the development of oil field chemicals as drag reducing agents and enhanced oil recovery candidates represents a crucial avenue for optimizing the efficiency and sustainability of oil production operations. By advancing our understanding of these chemical agents and their applications, the oil and gas industry can strive towards achieving greater operational efficiency, cost-effectiveness, and environmental stewardship in hydrocarbon extraction processes.

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Signature

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5/11/2024

