Seeking A Biodegradable Lubricant

Description of Desired Solution:

A SpecialChem Client is seeking a biodegradable lubricant which inhibits corrosion, displaces moisture, while maintaining lubricant performance. The solution will be packaged in portable containers and used in multi-purpose applications.

On top of being biodegradable, it is a plus if lubricant is also bio-sourced.

Background:

Today, many “bio-lubes” based on vegetable oils can be found on the market. Their performances are often less effective than petroleum-based products. For instance, the shelf life of existing biodegradable solutions is usually limited and after 6 to 8 months the product starts decomposing and doesn’t perform as required.

There is a need for a versatile biodegradable lubricant to replace existing petroleum-based products. But the performance of this product should be comparable to petroleum-based products (see below for detailed specifications).

The SpecialChem Client is a lubricant manufacturer who is willing to extend its portfolio of portable lubricants for multi-purpose industrial usage with a biodegradable lubricant. The targeted markets are within the mining, marine and oil/gas exploration industries.

| The expected US market is 10,000-50,000 units sold (1 or 5 gallons, and aerosol container) within the first year and over 100,000 units in future years. |

Type of solution sought:

- A material or an ingredient
- A product or a technology
- A co-developing partner
Detailed Solution Description:

This lubricant should meet the following **minimum requirements**:  
- **Biodegradable**: at least 60% of the sample is degraded within the test cycle. Some acceptable test cycle methodologies are listed here below:  
  - Standard Test Method for Determining Aerobic Aquatic Biodegradation of Lubricant (ASTM D-5864)  
  - CEC-L-33-A094 of the Coordinating European Council  
  - Modified Sturm Test of the Organization for Economic Cooperation and Development (OECD 301 B)  
  - Closed Bottle Test (OECD 301 D)  
  - Shake Flask Test (EPA 560/6-82-003)  
- **Lubricity**:  
  - Maintaining lubricating properties up to 800 Lbs. (ASTM D-3233B)  
  - Falex pin and V Block > 800 Lbs. (ASTM D-3233B)  
  - 4 Ball Weld Scar diameter < 0.9 millimeters (ASTM D-4172)  
  - Coefficient of friction < 0.1 (ASTM D-4172)  
- **Corrosion protection**  
  - 30 hours until failure with a salt spray test (ASTM B-117)  
- **Penetration**  
  - Proven performance comparable to multi-purpose petroleum-based lubricants  
  - Example: nail climb test results around 50 millimeters after 24 hours  
- **Water displacement** on metal surface: 50% (standardized moisture displacement test)  
- **Shelf life**: 2 years, in closed packaging (up to 5 gallon)

Possible Routes to Investigate (not limited to):

The SpecialChem Client is interested in a **technology available in a foreign market and not yet commercialized in the US**.  
Formulas which can be prepared/blended in-house are also of interest.

Solutions that are not of interest:  
- Lower performing vegetable based products.  
- Unstable formulation.
Timeframe for adopting this solution:

Within the next 12 to 24 months.

Other comments/Important Considerations:

- Comparative testing data versus market leading lubricants is a plus
- Cost is not the main concern for now
- The SpecialChem Client will consider licensing a foreign technology that is not yet commercialized in the US market
- On top of being biodegradable, it is a plus if lubricant is also bio-sourced.

Types of outcome expected:

- A ready-to-use solution
- A proven concept

Type of business considered:

- Establish a supply agreement
- Develop a contractual R&D partnership
- Licensing a technology
- Buying a patent

Company Demographics:

- Industry: Packaged Formulated Chemicals For Industrial Application
- Annual Revenue: Confidential
- Years in Business: Confidential
- Headquarters Area: U.S.A.
How to respond to this RFP?

You have 2 options for submitting a Proposal:

- On-line submission (fill out the on-line Proposal template and click on "Submit")
- Or download the Proposal Submission Template and send it back to open-innovation@specialchem.com
- Next Steps: All proposals will be gathered by SpecialChem and then forwarded to the seeker. The seeker, if interested by your Proposal, will contact you within one (1) month after submission deadline.

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