

**Project Type:**

- |                                                                   |                                               |
|-------------------------------------------------------------------|-----------------------------------------------|
| <input checked="" type="checkbox"/> Contract / Toll Manufacturing | <input type="checkbox"/> Material Procurement |
| <input checked="" type="checkbox"/> Scale Up / Piloting           | <input type="checkbox"/> Other :              |
| <input checked="" type="checkbox"/> Research & Development        |                                               |

**Are you willing to co-invest capital?**

- Yes       No

**Sector:**

- |                                                     |                                                  |
|-----------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Agrochemical               | <input checked="" type="checkbox"/> Performance  |
| <input type="checkbox"/> Pharmaceuticals            | <input type="checkbox"/> CASE                    |
| <input type="checkbox"/> Personal Care              | <input type="checkbox"/> Industrial              |
| <input type="checkbox"/> Electronics                | <input type="checkbox"/> Fuel Oil/Lube Additives |
| <input checked="" type="checkbox"/> Renewable/Green | <input type="checkbox"/> Other :                 |

**Raw Materials:**

- I will source materials       You will source materials       Combination sourcing

dinitroanthroquinone  
dimethyl formamide  
sodium formate

**Professional Certifications:**

- |                                                   |                                    |                                  |
|---------------------------------------------------|------------------------------------|----------------------------------|
| <input checked="" type="checkbox"/> ChemStewards® | <input type="checkbox"/> ISO 9001  | <input type="checkbox"/> cGMP    |
| <input type="checkbox"/> Responsible Care®        | <input type="checkbox"/> ISO 14001 | <input type="checkbox"/> Other : |

**Process/Technology Type:**

Oxidation Reaction  
Conversion of dinitroanthroquinone to dihydroxyanthroquinone in a process similar to US Patent 4,292,248  
Desired final product is dried solid material or aqueous slurry

**Unit Operations/Equipment:**

Reaction of raw materials listed above to create the product as a precipitate. Will require solids filtration and ability wash the solids. Customer will accept wet cake but would prefer drying if possible.

Specialized equipment needs: solids isolation and possible drying, NO2 removal

Analytical equipment needs: HPLC

Equipment material of construction: stainless steel 304 or higher

**Operating Conditions:**

Temperature range: 80-150 C

Pressure range: ambient to 15 psig

Viscosity range:

[Insert any other relevant information]

**Processing Volumes:**

R&D: 1-10 Kg	Q3	▼ 2024	▼
Pilot: 50-500 Kg	Q1	▼ 2025	▼
Commercial: 500 - 1000 Mt/yr	Q2	▼ 2025	▼

**Packaging Type:**

Drum/Tote  Supersack  ISO/tank truck  Other :

**Delivery & Transportation:**

Domestic  International  Road  Rail  Sea  Air

**Storage Conditions:**

Ambient  Blanketing required  Other :

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