

Nature of Invention: Process design

Applicant: PetroProtons Pvt. Ltd.

CEO: Atharva Deshmukh

Inventors: Aryan Agarwal (210199) ; Anshuman Gautam (210158)

Chemical Formula: $(C_2H_4O)_nCH_4O$

Chemical Name: Methoxy Polyethylene Glycol (mPEG)

Process Title: Batch Process for production of mPEG-400

Process Description:

- Give the block diagram for the feasible process (as determined in market analysis report). List all unit operations and process conditions.
- Give the material balance for a scaled-up process plant with capacity of 1000 kg/day. (If needed, simplify the calculations by stating assumptions)
- List the capacity of reactors needed and evaluate the cost. Use Glass lined Carbon steel (GS lined CS) as the material of construction (MOC). Use the pressure according to reaction conditions. You will use only 70% of the total volume. If you design a 1000 L reactor, you can only fill 700 L reaction mixture.

Process Description and Cost Analysis

<https://drive.google.com/file/d/1QIGmeYJFq7ZuEUHnFQeZVrePvv0KkwgW/view?usp=sharing>



References: Provide reference for a research paper or an actual patent.

- <http://www.matche.com/equipcost/Reactor.html>
- <https://patents.google.com/patent/US8952205>

List the contributions of each author:

- Aryan Agarwal (Authors 1) and Anshuman Gautam (Author 2) carried out the literature search and find the reaction steps, and product yield.
- Aryan Agarwal (Author 1) carried out the necessary mass balance.
- Anshuman Gautam (Author 2) did the Cost Analysis of the Process.

Sign the pdf and upload.

Name	Roll No	Signature
Atharva Deshmukh	210231	
Aryan Agarwal	210199	
Anshuman Gautam	210158	