Nature of Invention: Process design

**Applicant:** Your Company Name

**Inventors:** Names in the order of contribution (highest contributor’s name will be first. Author’s must be listed under the Technical Services division)

**Chemical Formula:**

**Chemical Name:**

**Process Title:**

**Process Description:**

1. Give the block diagram for the feasible process (as determined in market analysis report). List all unit operations and process conditions.
2. Give the material balance for a scaled-up process plant with capacity of 1000 kg/day. (If needed, simplify the calculations by stating assumptions)
3. 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.

**Capital cost (only for the reactor):**

**example:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equipment** | **Design Capacity (L)** | **No. of units** | **Cost/unit ($ for year 2014)** | **Total Cost ($ for year 2014)** |
| Reactor 1  (Jacketed reactor, agitated, Carbon steel, atm. pressure) | 2000 | 1 | 33,500 | 33,500 |
|  |  |  |  |  |

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

1. <http://www.matche.com/equipcost/Reactor.html>

**List the contributions of each author:**

* (Example) Author 1 and 3 carried out the literature search and find the reaction steps, and product yield. Author 1 also evaluated the reactor cost.
* Authors 2 and 3 found necessary separation steps to achieve desired product purity.

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