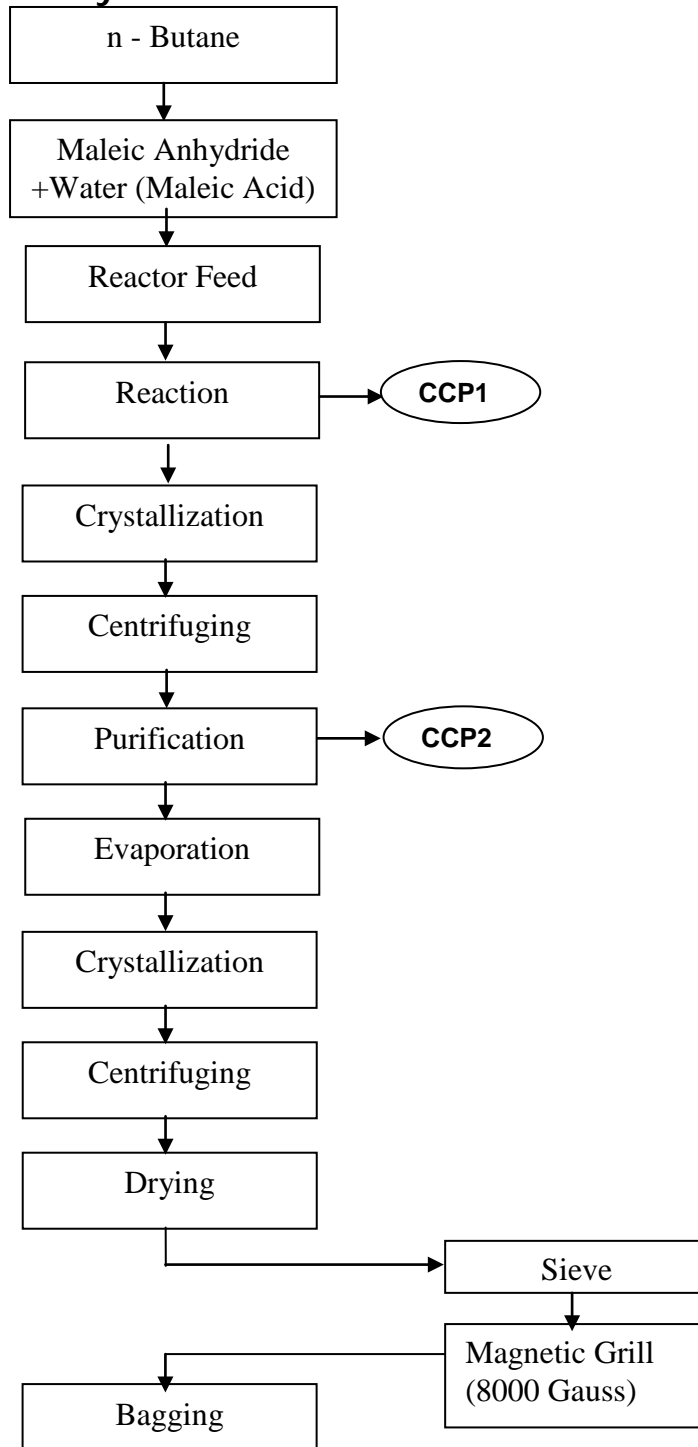


Date: 01 January 2016

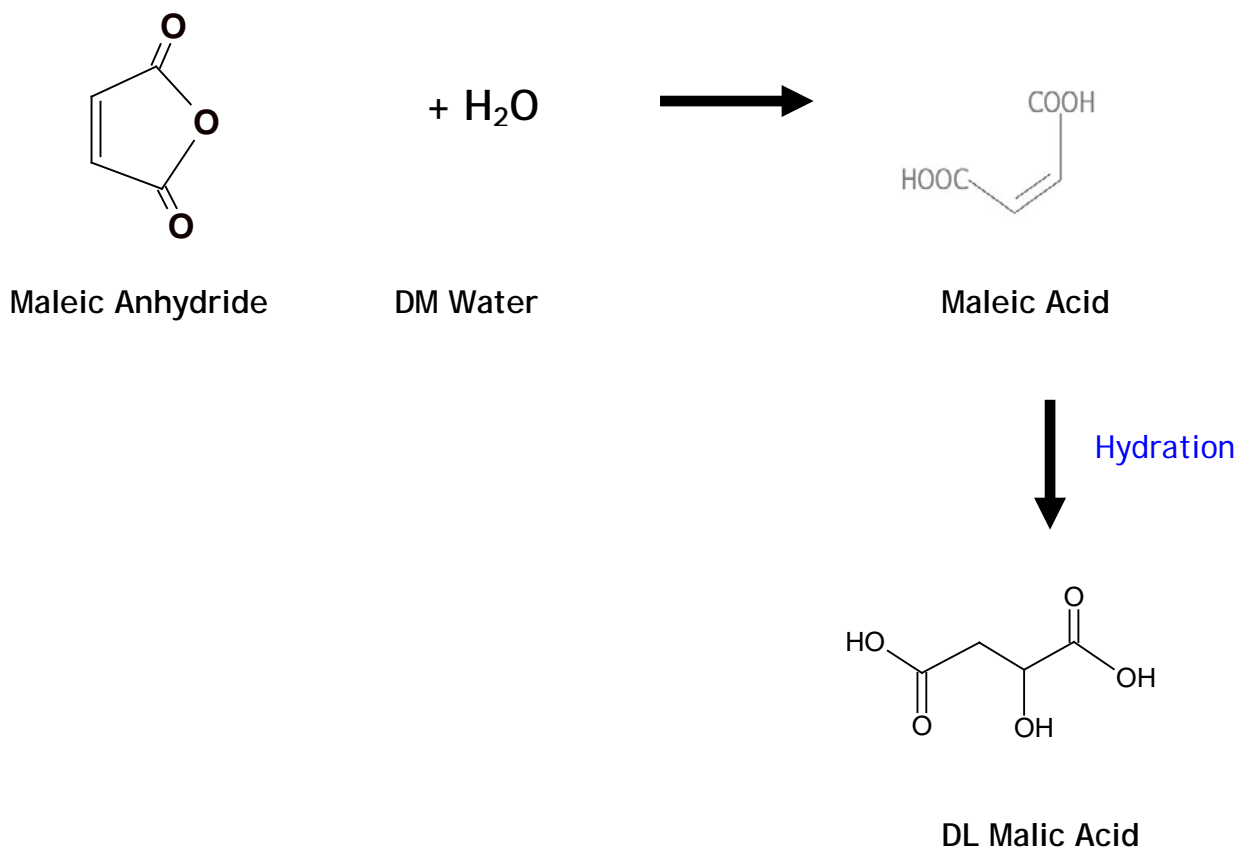
Brief Manufacturing Process / Process Flow Diagram / Route of Synthesis – DL Malic Acid



Brief Manufacturing Process:

DL Malic acid is manufactured by the hydration of Maleic acid.

Reaction Scheme:



B.K. Bama

Signature:

Name: B.K. Bama

Designation: Head - Quality Assurance

Company Seal:



Date: 01-January-2016

TO WHOM SO EVER IT MAY CONCERN

We herewith confirm that the product **DL - Malic acid** manufactured by Thirumalai Chemicals Limited, Based on HACCP process risk assessment, we have implemented our process CCP and CCL and described below.

Plant:		Malic Acid Plant			
Description of CCP	Target Limit	Action Limit	Control Limit	Frequency of	Record
1.Reactor Temperature (During Hydration)	185°C to 195°C	183°C to 184 °C	180°C to 182°C	Every Batch	CCP Register
		196°C to 197°C	198°C to 200°C		
2.Purification process - MAC Content	0.3 % , Max	0.4 % , Max	0.5 % , Max	Daily	CCP Register



Signature:

Name: B.K. Bama

Designation: Head - Quality Assurance

Company seal:



Date: 22-May -2017

To Whom So ever it may concern

Batch Number Coding

Product: DL Malic Acid & Fumaric Acid

The batch number is a four digit number. It is non repetitive. It is generated for each batch, which varies between 19 to 25 Tons. The batch numbering methodology is a part of traceability system. The batch number provides a way to find out the critical conditions (CCP) under which batch was produced, the specific details of Raw materials used, and the persons involved in the manufacturing.

The Month and year of manufacturing is given on each bag and all our CoA's have the Manufacturing date.



Signature:

Name: B.K. Bama

Designation: Head - Quality Assurance

Company seal:

