

LAB JOURNAL - Version 3.0

Experiment No. : LBN 48 Aim : To develop product equivalent to reference product
Equipment Details : Glass RBF with stirrer set up
Reaction Scheme : Safety Precautions :

Input Raw Material

Sr.No	Raw Material	Sources	Cas No.	RM No	Quantity gms	Purity	Rm %	Molecular Wt.	No. of Moles	Molar Ratio
1	Vicaspin LUB 1020 (R226011203) Bu- EO-PO HV-66.0/ MW-1100	Viswaat			172.0			1100	0.16	1.0
2	P2O5	Commercial			9.412				0.066	0.41
3	Epomine SP-012	Nippon			35.5	100				
4	2 ethyl hexyl acrylate				67.9	100		184.3	0.37	
5	Step- B reaction mass (25%)				38.2					
6	Step- A product				152.9					

Experimental Procedure

Sr.No	Time hrs	Temperature °C	Pressure/Vacuum-N2	Process Steps	Remarks
1	1-2 / 1-2	45-50 / 60-65	N2	Step- A To main reactor added Vicaspin LUB 1020 (R226011203) Bu- EO-PO HV-66.0/ MW-1100 under stirring and nitrogen atmosphere temp. 40 deg increased temp slowly with addition of P2O5	clear mass
2	1 / 3	40-45 / 55-60	N2	Step-B To main reactor added Epomine SP-012- reaction mass held with slow addition of 2 ethyl hexyl acrylate, checked free acid at interval	AV-51.8, free acid 0.6
3	1-2	55-60	N2	Step-C To main reactor added Step- B reaction mass (25%) and Step- A product, mixed till uniform	AV 48.9 Amine 28.7

Optimized Reaction Conditions: Temperature c: 55-60 | N2/Vac: N2 | Time: 4h

Critical Process Parameter

Sr No	Source	Time	Temp	Observation Details
1	Step-A	1-2	50	clear mass

Critical Parameters

S.no	Parameter	Reference	Value
1	av	43.2	48.9
2	aminev	30.1	28.7

Conclusion: AV 48.9 against target 43.2; batch outside range, rework planned.