

High Density Polyethylene (HDPE)

PROCESS FLOW DIAGRAM

Suspension / Stirred Tank Reaction Process

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HDPE – Suspension / Stirred Tank Reaction (also used for Linear Low Density Polyethylene, LLDPE)														
Valve Number	Valve Description	Design Temperature Range		Design Pressure Range		Pipe Size		Recommended Valve ¹						
		deg F	deg C	psig	bar g	in	dn	C-Series	T-Series	G-Series	ISOLATOR 2.0	iRSVP	Watson Series	FlexStream®
1	Fresh Feed – Ethylene	50 – 150	10 – 65	100 – 200	6.9 – 13.8	2 – 4	50 – 100				•			
2	Dried Ethylene	100 – 200	38 – 93	100 – 200	6.9 – 13.8	2 – 4	50 – 100				•			
3	Pressurized Ethylene	100 – 200	38 – 93	100 – 200	6.9 – 13.8	2 – 4	50 – 100				•			
4	Catalyst	50 – 100	10 – 38	100 – 200	6.9 – 13.8	1 – 3	25 – 75				•			
5	Co-Catalyst	50 – 100	10 – 38	100 – 200	6.9 – 13.8	1 – 3	25 – 75				•			
6	Hydrogen	50 – 100	10 – 38	100 – 200	6.9 – 13.8	1/2 – 2	13 – 50				•			
7	Nitrogen	50 – 100	10 – 38	100 – 200	6.9 – 13.8	1/2 – 2	13 – 50				•			
8	Co-Monomer	50 – 100	10 – 38	100 – 200	6.9 – 13.8	1 – 3	25 – 75				•			
9	Recycled Co-Monomer	100 – 150	38 – 65	100 – 200	6.9 – 13.8	1 – 3	25 – 75				•			
10	Dried Co-Monomer	100 – 200	38 – 93	100 – 200	6.9 – 13.8	1 – 3	25 – 75				•			
11	Polymerization Reactor	150 – 200	65 – 93	100 – 200	6.9 – 13.8	4 – 8	100 – 200	•						
12	Deactivator	50 – 100	10 – 38	100 – 200	6.9 – 13.8	1 – 3	25 – 75				•			
13	Raw Polyethylene	150 – 200	65 – 93	100 – 200	6.9 – 13.8	4 – 8	100 – 200	•						
14	Flash Tank	150 – 200	65 – 93	100 – 200	6.9 – 13.8	4 – 8	100 – 200				•			
15	Desolventizer	150 – 200	65 – 93	100 – 200	6.9 – 13.8	4 – 8	100 – 200				•			
16	Recovered Raw Solvent and Co-Monomer	150 – 200	65 – 93	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
17	Lights Solvent	150 – 200	65 – 93	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
18	Receovered Co-Monomer	100 – 150	38 – 65	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
19	Recovererd Solvent	150 – 200	65 – 93	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
20	Dried Solvent	100 – 150	38 – 65	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
21	Seperated Solvent	100 – 200	38 – 93	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
22	Pressurized Solvent	100 – 200	38 – 93	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
23	Heaves Solvent	150 – 200	65 – 93	100 – 200	6.9 – 13.8	3 – 6	75 – 150				•			
24	Final Polyethylene Pelet Product	50 – 100	10 – 38	100 – 200	6.9 – 13.8	4 – 8	100 – 200				•			
	Heat Exchanger	300 – 1500	150 – 815	200 – 900	13.8 – 62.0	1/2 – 2	13 – 50					•		
	General Ball Valves	25 – 900	4 – 482	25 – 600	1.7 – 41.4	1 – 3	25 – 75			•				

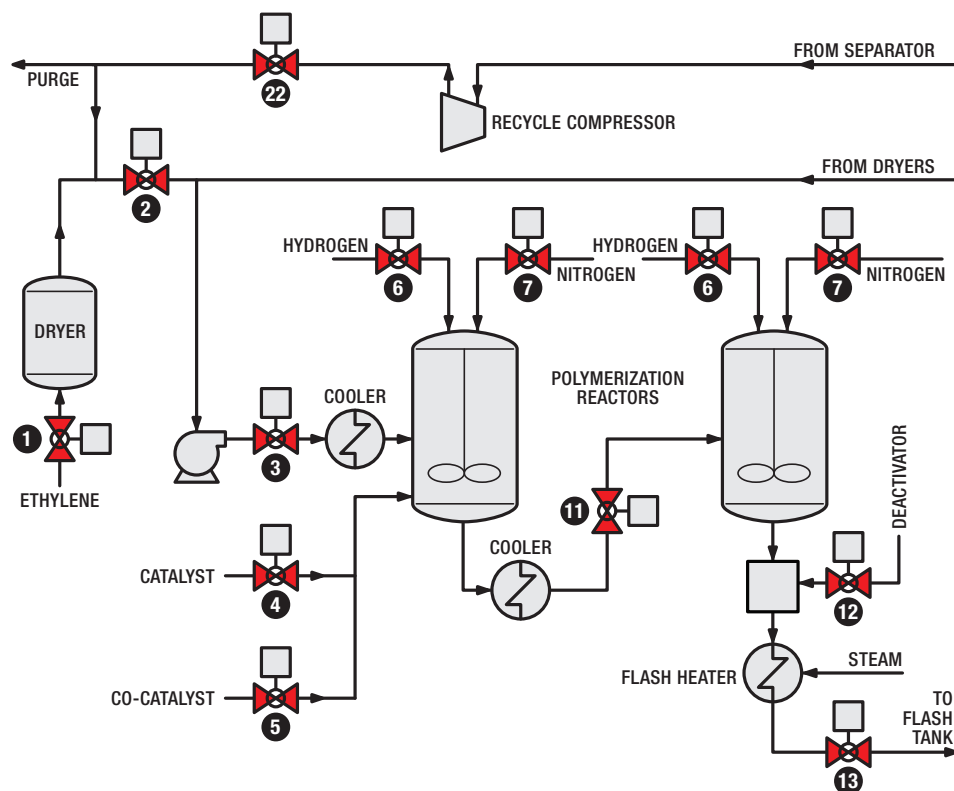
¹ Recommend ISOLATOR 2.0 or T-Series if size, pressure and temperature conditions are met.

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