

Worksheet

HAZOP-PC 1.00

Company: DOW CHEMICAL CO.

Node: 1

Process: HDPE - POLY B

Page: 1

Node: 1 Feed Line HY-2007 to DR-2007					
Parameter: Flow			Intention: 40 - 90,000 Lb. / Hr.		
GUIDEWORD	DEVIATION	POSSIBLE CAUSES	CONSEQUENCES	RECOMMENDATIONS	BY
More	More Flow	Control valve open. Flushes open. Bypass open around hydroclone Loss of HY-2007 overhead flow.	Dryer overload. High solvent content in powder. powder entrainment Overhead exchanger fouling. Dryer shutdown on motor overamp. Overfill D-2302. Plugged out line with powder will over pressure system.	Install meter in hydroclone overhead line.	GH
				Operator training	RF
				Shutdown feed on high motor amps. (MDR-2007).	KW
				Stop feed at high pressure.	KW
				L/L temp.trip is in control logic	KW
Less	Less Flow	Plug in system. False LI (D-2005) Pump shutdown.	Build level in hold tank. Strain out polymer No separation in hydroclone.	Permit operator interface before train shutdown.	KW
				Program HY-2007 bypass to open on loss of overhead flow.	
				Look at fail mode on D-2005 LI.	GC
				Look at LI redundancy.	KW
				Bypass HY-2007 on low pressure at hydroclone.	KW
				Evaluate solids analyzer.	BS

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Node: 1
Page: 2

Node: 1 Feed Line HY-2007 to DR-2007					
Parameter: Temperature			Intention: 75 -80 Deg. C.		
GUIDEWORD	DEVIATION	POSSIBLE CAUSES	CONSEQUENCES	RECOMMENDATIONS	BY
More	Higher Temp	Loss of temperature control at reactor. Heat tracing fail	Pump cavitation. Polymer in solution.	Check max. temp. of heat tracing.	GC
Less	Lower Temp	Tracing failure. Idle operation. Low set point. Cold solvent flush.	Wax deposition. Solvent wet powder Instrument reading problems. Plugged lines.	Operator training Evaluate flush accounting meter.	RF GC

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Node: 1
Page: 3

Node: 1 Feed Line HY-2007 to DR-2007					
Parameter: Pressure			Intention: 140 -170 PSIG		
GUIDEWORD	DEVIATION	POSSIBLE CAUSES	CONSEQUENCES	RECOMMENDATIONS	BY
Less	Lower Pressure	Opeeration on bypass. Flow meter plug. i.e. any restriction. D-2500 low press.	Plug due to solvent vaporizing See Low Flow. Lose % solids control.	HAZOP D-2500	GC