

Glycol Plant Personnel Reactive Chemical Interviews Questions
Second Round of Interviews on January 22, 1997

1. IS THERE A REACTIVE CHEMICAL CONCERN IF WATER IS ADDED TO THE CRUDE PO STORAGE TANKS?

Yes

4/4 SOS's
Correct
YYYY

2. IN UNINSULATED DH1251 AND 1252A,

- (A) WHAT IS THE PERCENT WATER WE NEED TO STAY BELOW TO PREVENT A PO TO GLYCOL REACTION?
(B) AT WHAT TEMPERATURE DO WE HAVE A RUNAWAY REACTION?
(C) WHAT IS THE RUNAWAY TEMPERATURE IF CELL EFFLUENT HAS CONTAMINATED THE TANK?

- (A) <30% water
(B) >90 degrees C
(C) 30 degrees C

4/4 SOS's
Correct
YYYY
YYYY
YYYY

3. (A) DOES TITANIUM AND DRY CHLORINE REACT AT 40 DEGREES C?
(B) DOES TITANIUM AND WET CHLORINE REACT AT 40 DEGREES C?
(C) DOES TITANIUM AND DRY CHLORINE REACT AT 160 DEGREES C?
(D) DOES TITANIUM AND WET CHLORINE REACT AT 160 DEGREES C?

- (A) Yes
(B) No
(C) Yes
(D) Yes

4/4 SOS's
Correct
YYYY
YYYY
YYYY
YYYY

4. (A) WHAT ARE THE CONSEQUENCES OF A LOW/LOW WATER SPRAY (<5 GPM) IN D-102?
(B) WHAT ACTIONS SHOULD BE TAKEN?

- A. Consequence: a chlorine-titanium reaction
B. Actions to be taken:

- (1) Check all water B/V's in the field to verify they are open.
(2) Check the control valve to verify it is working properly.
(3) Check process water pressure.
(4) Check flow transmitter.
(5) Pull R-101 emergency trip procedure. Correct problem and restart the reactor using R-101 start-up procedure.
(6) By-pass water

4/4 SOS's
Correct
YYYY
YYYY
Y
Y
YYYY
YYYY

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5. WHAT SAFEGUARDS ON THE DEGASSER PREVENT A WET CHLORINE REACTION WITH TITANIUM?

High degasser temperature trip at 130 degrees C
High degasser pressure trip at 12 psig
Nitrogen purge flow 100 scfh trip

4/4 SOS's
Correct
YYYY
YYYY
YYYY

6. (A) THE PLUG FLOW REACTOR SHOULD NEVER BE RUN WITH MORE THAN WHAT PERCENT OF CHLORINE IN THE VENT SYSTEM?
(B) WHAT REACTION WOULD OCCUR?
(C) WHAT IS IN PLACE TO PREVENT A REACTION FROM HIGH CHLORINE IN THE VENT SYSTEM?

(A) 25%
(B) Reaction of chlorine and titanium.
Uncontrolled reaction of chlorine and propylene.
(C) 25% chlorine in vent system trip
Nitrogen purge flow 100 scfh
Ratio control and trip

4/4 SOS's
Correct
YYYY
YYYY
YY
YYYY
YYYY
Y

7. (A) WHEN BREAKING VACUUM ON GLYCOL COLUMNS, WHAT SHOULD BE THE BOTTOM TEMPERATURE?
(B) IF YOU HAD TO BREAK VACUUM ON A HOT DISTILLATION COLUMN, WHAT WOULD YOU USE TO BREAK THE VACUUM AND WHAT WOULD YOU NEVER USE?

(A) Policy is followed not to break vacuum until the bottom temperature is below 80 degrees C.
(B) Use nitrogen. Never use air.

4/4 SOS's
Correct
YYYYY
YYYY

8. IF THERE WAS A SPILL OF WATER CONTAINING A MODERATE AMOUNT OF PROPYLENE OXIDE, WOULD IT BE OK TO USE A CLAY BASED ABSORBENT ON THE SPILL? WHY?

No. PO reacts with clay based absorbents.

4/4 SOS's
Correct
YYYY

9. HOW IS CELL EFFLUENT PREVENTED FROM REACTING WITH PDC AND PO FROM THE PO STILL'S FEED?

Cell effluent to T-102B feed pressure differential trip
Cell effluent to T-102B feed low stills feed trip
Cell effluent to T-102B feed pressure check valve
Small control valve (restricting orifice) on cell effluent control valve.

4/4 SOS's
Correct
YYYY
YY
YYYY
YYYY

10..WHAT ARE THE PRECAUTIONS FOR THE FOLLOWING CONCERNS IN THE HYDROGENATION SYSTEM?

- (A) FLAMMABLE MIXTURE IN REACTOR AND STACK
- (B) HIGH REACTOR TEMPERATURE
- (C) CATALYST EXOTHERM DURING REMOVAL

4/4 SOS's

Correct

- (A) Nitrogen purge for air exclusion during reactor startup
- Nitrogen stripping in degasser
- High temperature alarms on stacks
- (B) Five temperature indications on reactor
- High temperature trip
- High hydrogen flow trip
- (C) Catalyst removal procedure calling for a layer of water on top of the catalyst in the dumpster.

Y
YYYY
YYYY
YYY
YYYY
YYYY
YYYY

11. (A) CAN THE PLUG FLOW REACTOR BE RUN WITH CHLORINE GAS OR LIQUID CHLORINE?

(B) WHAT ARE THE SAFEGUARDS TO PREVENT THIS FROM OCCURRING?

4/4 SOS's

Correct

- (A) The plug flow reactor should never be run with liquid chlorine.
- (B) Dew point calculations and alarms
- Chlorine knockout pot with redundant levels and trips

YYYY
YYYY
YYYY

12. (A) IS IT OK IF WATER BACKS UP INTO THE CHLORINE OR PROPYLENE LINES TO THE REACTOR?

(B) WHAT ARE THE SAFEGUARDS TO PREVENT THIS FROM OCCURRING?

4/4 SOS's

Correct

- (A) No
- (B) Low DP trip
- Dual EBV's on Chlorine, single EBV on propylene - trip interlocked

YYYY
YYYY
YYYY

All 4 SOS's scored 100% correct.

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