

Bulk Dispense: Reagent Dispense Line Plumbing

Rud Lucien | December 19, 2024

Bulk Reagent Dispense System – Dispense Principle of Operation

The bulk dispense system utilizes regulated pressure to dispense various reagents into troughs on a liquid handler deck. Reagents are stored in specialized, pressure-rated glass bottles. Compressed air from the house supply is regulated through a proportional control valve, and an additional downstream pressure-regulating valve ensures the bottles are not pressurized beyond their rated limits.

When dispensing to a particular trough, the system opens the corresponding reagent solenoid valve to pressurize the selected bottle. Downstream, a media-separated valve opens, allowing the pressurized liquid to flow from the bottle into the trough.

Check valves are installed to prevent backflow, ensuring that reagent flows only from the bottles to the troughs.

Key monitoring and control components include:

- **Pressure Sensor:** Monitors system pressure to maintain operational safety and efficiency.
- **Non-Contact Flow Sensor:** Tracks the liquid flow rate and total dispensed volume for precise delivery.
- **Bubble Sensor:** Detects when fluid lines are full or empty, ensuring consistent operation.
- **Capacitive Sensor:** Monitors liquid levels in the troughs, automatically closing all associated valves when the liquid reaches the specified maximum height to prevent overfilling.

Bulk Dispense: Reagent Dispense Line Plumbing

Rud Lucien | December 19, 2024

