



## DESPRAY SAFETY FEATURES

**DeSpray safety record.** Since 2001 our collective recycling volumes exceeds 500,500,000 Aerosol spray cans recycled with Zero (0) safety incidents involving personal injury. Heres how...

1. Every DeSpray system has multiple redundant programming safety steps for each function which helps eliminate human error.
2. Auto Oxygen sensing is incorporated in both the working chambers.
3. Oxygen sensing is placed in the operator working area to ensure a safe working atmosphere.
4. Auto Nitrogen control ensures a safe Non oxygen processing atmosphere while crushing the cans. The system will not crush cans unless the safety limit of a non-explosive atmosphere is met. The system will automatically purge with nitrogen. Only when preset parameters are met will the machine operate. System will go into "Auto Pause".
5. Operator override is not possible without Management Passwords. To access Service mode and Manual modes proper Access codes will need to be entered into the HMI. This ensures that systems parameters are not adjusted by non-qualified personnel.
6. Low Oxygen sensing within the container system footprint ensures safe operator warnings if the Oxygen levels within the system working area are non-safe levels.
7. VOC vacuum extraction systems are located at both machine openings during machine filling and brick ejection functions. This ensures that VOC levels remain at a safe level.



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8. LEL detection within the system working area ensures operator safety warnings levels within the system working area are non-safe levels.
9. Internal closed loop oxygen monitoring and controls. Within the crushing chamber and pressure vessels. A non-explosive atmosphere is maintained automatically. If the crushing chamber is below preset explosion risk levels, the system will alarm and stop.
10. Safety relief valves are mounted on all tanks, compressors and pressurized components. This ensures that tanks do not exceed safety pressure parameters.
11. Warning safety Beacon with Audio Alarm is installed on every system. The alarm is activated automatically in unsafe conditions.
12. Hi flow Air Exchange fan ensures proper Airflow through containerized system in order to maintain a non-explosive working atmosphere.
13. Super heavy duty Crushing chamber manufactured designed and manufactured to World class safety standards. The manufacturing facilities are ISO 9001:2008 certified as well as ASME and PED certified for welding pressure vessels.
14. Hazop studies are done for every system.
15. Electrical components and installation follow all country codes for electrical and software parameters. These include ATEX, NEC, CSA and U-Stamp certified.
16. Before the systems leave our facilities, the entire machine will be certified by Lloyds as a complete safe operating system that meets ASME and PED or ATEX.
17. Pressure sensors and automated valve switching are set at – 6 P.S.I (.4 Bar).
18. Safety relief valves throughout set at 7 (.5Bar)P.S.I. which will release and redirect excess pressure that exceeds safe conditions.
19. Rupture discs are installed on all pressurized vessels and tanks. These active and redirect over pressure conditions away from the operator at 7.5 P.S.I (.5 Bar) in case of non-safe conditions within. If this non safe condition occurs, the HMI is alarmed, and immediate system shut down is activated. Safety warnings also are displayed on the operator HMI.
20. Closed loop feedback is on all valves and components. They are monitored by the PLC.
21. All tanks have closed loop feedback with Temperature, pressure, and level indicators. All parameters are visible and accessible via the HMI.
22. All doors, stairs, lifting areas cannot be entered without safety interlocks being breached which ensures operator not being able to enter controlled areas without breaking interlock switches. If a breach occurs the system will not operate and goes into standby mode. Along with safety Beacon triggered.
23. Explosion proof electrical components. Pressurized Electrical purge panel ensure that O<sub>2</sub> gasses can enter the electrical panel.
24. Redundant operating gauges are installed with both electrical and manual gauges.



25. Program access limits. All program changes can only be done through factory engineers via special management override codes for the Program.
26. Morning start - up oxygen purge is Automatic before the system will operate. At shift start the machine goes through a mandatory Start up procedure that includes a 30 minute wait period with all operator area vent fans running before automated processing sequence can be entered. All interlocks and safe operating conditions run through safety protocols each day to ensure safe start up conditions.
27. Custom DeSpray Safety Fire suppression systems are custom designed specifically for every DeSpray system.
28. Remote program monitoring is available in every country to ensure Engineering monitoring and system trouble shooting.



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