



Aug 17, 2021

Attn:

RE: Overall design Philosophy & Safety design features – Despray Aerosol Recycling Technology

- The combined Despray engineering and management team have an impeccable safety record with Zero accidents since the conception and implementation of the “closed loop”, environment controlled recycling technology in 2001. Our first experience with full aerosol recycling technology was in 2001. Since then our team have designed and managed many installations with the same or upgraded technology
- Since 2001 the collective recycling volumes through these systems are approximately 500,000,000 Cans with Zero incidents based on this closed environment technology.
- The technology is based on a closed loop controlled non oxygen atmosphere crushing chamber. This chamber has Oxygen sensing and Oxygen level controls and feedback. If for any reason the Oxygen within the closed “batch style” raises above safe levels, the system pauses and nitrogen is automatically introduced until the safe level is met again. Only then can the system carry on processing. By controlling and monitoring the crushing environment the risk of any fire or explosion is completely mitigated. Even if liquids and gases combine, we do not allow for an oxygen rich environment to occur, therefore eliminating the risk factor during processing. We eliminate the human error factor through programming parameters and safety features. This assurance cannot be achieved by any other aerosol recycling methods, including but not limited to Shredding, individual can piercing, incineration, landfilling or manual can emptying methods.
- The entire operation uses all pressures below 7 P.S.I. to ensure operation under pressure vessel parameters

Despray Design philosophy & Safety features

1. Redundant programming safety steps which eliminate human error, such as Auto Oxygen sensing, Auto pause, Auto Nitrogen control. Operator override is not possible without Management Passwords. Service and Manual control can only be done with proper Access codes
2. Low Oxygen sensing within the container system footprint to ensure safe operator Oxygen levels within the system working area.
3. LEL detection within the system working area
4. VOC extraction system at both machine openings during machine filling and brick ejection functions ensures No chance of fume inhalation.

5. Internal closed loop oxygen monitoring and controls. Within the crushing chamber a non-explosive atmosphere is maintained automatically. Below fire or explosion risk levels of 4%.
6. Safety relief valves on all tanks, compressors and components
7. Automatic pressure, temperature and weight controls and feedbacks controlled by main CPU
8. Warning safety Beacon with Audio Alarm
9. Air Exchange fan to ensure proper Airflow through containerized system
10. Super heavy duty Crushing chamber manufactured by our mother company "Boessenkool". Boessenkool enjoys over 115 years of manufacturing history including Gas and Oil customers such as G.E, Siemens and other world class Customers. We manufacture to World class safety standards. Boessenkool is ISO 9001:2008 certified. Boessenkool is ASME and PED certified for welding pressure vessels
11. We have an independent Hazop study done for this specific Despray system.
12. Our electrical system designer and manufacturer is Electromach in the Netherlands. They are specialty builders of hazardous electrical and software for ATEX ,NEC, CSA and U-Stamp certified. Electromach QC controller is Christian Cameron. He is on the advisory committee for the NEC-31 and IEC.
- 13. The machine will be certified by Lloyds to meet ASME and PED or ATEX.**
14. Pressure sensors and automated valve switching set at – 6 P.S.I (.4 Bar)throughout
15. Safety relief valves throughout set at 7 (.5Bar)P.S.I.
16. Rupture disc switching at 6.5 P.S.I (.5 Bar)/ This extra safety feature will redirect blow off from any malfunction away from the machine and operator in case of any internal malfunction.
17. Entire machine has been designed to operate below 7 P.S.I (.5 Bar)as not to be operating in pressure vessel parameters. All components specified for explosive atmosphere following ATEX or UL codes.
18. Closed loop feedback on all valves and components monitored by PLC.
19. PLC control is programmed to ensure no operator interference. Management override Security code insure no operator independent changes in operation or safety override.
20. All tanks have closed loop feed back with Temperature, pressure, and level indicators.
21. LEL detectors and Oxygen detectors are installed within the machine . These detectors will continuously monitor operating atmosphere within the system. Any breach of safe operating condition will immediately shut down operating system and sound the alarm beacon and Siren. System can only be restarted after safe conditions are met.
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.

23. any and all program changes can only be done through factory engineers via special management override codes for the Program
24. Each morning or shift start goes through Start up procedures include 30 minute wait period with all vent fans running before automated processing sequence can be entered. All interlocks and safe operating conditions run through safety protocol for approx.. 30 minutes to ensure safe start up conditions.
25. Operating DBA rating of less than 65 DBA within 1 Metre of the machine
26. All safety cages, ladders and safety rails are included with interlocking shut downcontrols
27. 3 different levels of programming access. Operator level, Management level and Maintenance level