

Case Study: Chemical Facility Ground Testing For Safety



Quad Plus®



Safeguarding a Chemical Manufacturing Facility from Electrical Hazards Through System Ground Testing

Objective

- To identify and resolve electrical grounding issues at a chemical manufacturing facility using system ground testing, ensuring the safety and operational efficiency of both personnel and machinery

Solutions

- Used system ground testing to identify multiple issues
- Rectified three significant grounding faults
- Provided detailed remedial instructions
- Set up a preventive cleaning and maintenance schedule to mitigate risks of overheating and shutdowns

Results/Benefits

- Resolved three major electrical grounding issues with specific remedial actions
- Provided the facility with a comprehensive guide for ongoing safety
- Explicitly warned against the risks of machinery overheating that could lead to facility shutdowns

Background

Our team performed system ground testing to evaluate the state of the electrical grounding at a chemical manufacturing facility. Several issues were discovered.

One of the most urgent, was a switchgear reporting a concerning 31.5 ohms, when the ideal reading should have read 2.2 ohms. Additionally, the fence around this switchgear was incomplete, posing a serious safety risk.

Ground wires were disconnected at both a tank and a ground box. Multiple disconnects near the main offices also lacked proper grounding. Moreover, various machinery was covered in soot and dirt, which increased the risk of excessive overheating, potential catastrophic malfunction, and subsequent facility shutdowns.

Quad Plus Solution

Based on the system ground testing results, we set out to correct each identified issue. We reconnected the ground wire at the tank and the separate wire at the ground box, integrating them into the safety grid. For the faulty disconnects outside the main offices, we provided the facility staff with explicit grounding instructions.

We recommended replacing the switchgear with the high ohms reading and completing the fence around it for added safety. Given the very real risks associated with dirty machinery, we emphasised the need for regularly scheduled cleaning and detailed maintenance routine to prevent overheating and malfunctions that could halt production.

Three major grounding faults were corrected, and the facility was provided with all the necessary information and steps for long-term electrical safety. Explicit instructions were given for ongoing grounding maintenance. Moreover, the plant was informed about the urgency of maintaining equipment cleanliness to mitigate the specific risks of overheating and catastrophic malfunctions.