

SULFUR HANDLING HAZARDS

The fumes off of molten sulfur contain mostly water vapor, with varying amounts of H₂S and sulfur vapor. The principle concerns are H₂S (inhalation and fire hazard) and sulfur fumes (vent blockage).

Two recent sulfur fires/explosions serve to remind us that operators must be vigilant of changing sulfur conditions. In one case, a vent system became blocked with condensed sulfur vapor, allowing an explosive mixture of H₂S to form and ultimately explode. In another case, a sulfur producer had a process upset in their claus unit, sending sulfur high in H₂S to a user. After several fires in the sulfur storage tank, the source of the problem was identified and corrected.

Owners should also be aware that pyrophoric iron sulfide could be formed when sulfur and water are in contact with steel. Iron sulfide acts as a catalyst to ignite H₂S, even when the system is free of conventional ignition sources.