Contribution ID: **25282** Type: **Extended Abstract**

Experimental Investigation of Methyl Iodide Removal in a Filtered Containment Venting System Facility

Filtered Containment Venting System is a passive safety system that is used for mitigation of severe accidents. Its main objectives are control of over-pressurization and removal of radioactive products like iodine. An FCVS tank with scrubbers is connected with containment via a pipe. When pressure inside the containment starts building up after an accident, this system gets activated. The air is transferred from the containment to this tank where radioactive products like iodine gets removed and clean air is released into the environment. After Fukushima, Pakistan Institute of Engineering and Applied Sciences (PIEAS) started working on indigenous development of FCVS. A wet scrubbing type FCVS lab scale setup was developed for in depth research on removal of iodine. In a severe accident, iodine can get released in three forms that are cesium iodide aerosols, elemental iodine and organic iodine. Organic iodide is the most problematic and hazardous form of iodine and its retention is extremely difficult due to its high revolatilization capability. The main focus of this research was to study removal of methyl iodide by using a venturi scrubber. Different operating parameters were varied to see their effect on removal efficiency of methyl iodide. Effect of superficial gas velocity on gas holdup was studied. Increase in gas holdup with increase in superficial gas velocity was observed. 7 to 42% increase in gas holdup was observed by variation in superficial gas velocity from 3.7 to 11.1 cm/s. Effect of superficial gas velocity on removal efficiency of methyl iodide was also investigated. Increase in removal efficiency of methyl iodide was observed up to 9.25 cm/s after that increase in removal efficiency became insignificant. Results showed that both gas holdup and superficial velocity played a positive role in removal of methyl iodide. These parameters can be tuned to get optimum removal efficiency

Technical Track

Safety and Severe Accidents

Primary author: ., Jawaria (Pakistan Institute of Engineering and Applied Sciences)

Co-authors: Dr FAROOQ, Amjad (Pakistan Institute of Engineering and Applied Sciences); Dr WAHEED, Khalid (Pakistan Institute of Engineering and Applied Sciences); Dr AHMAD, Masroor (Pakistan Institute of Engineering and Applied Sciences); Dr IRFAN, Naseem (Pakistan Institute of Engineering and Applied Sciences)

Session Classification: Safety and Severe Accidents