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# Catalysts BY EVONIK

## Handling Procedures for Activated Metal Catalysts (AMC)

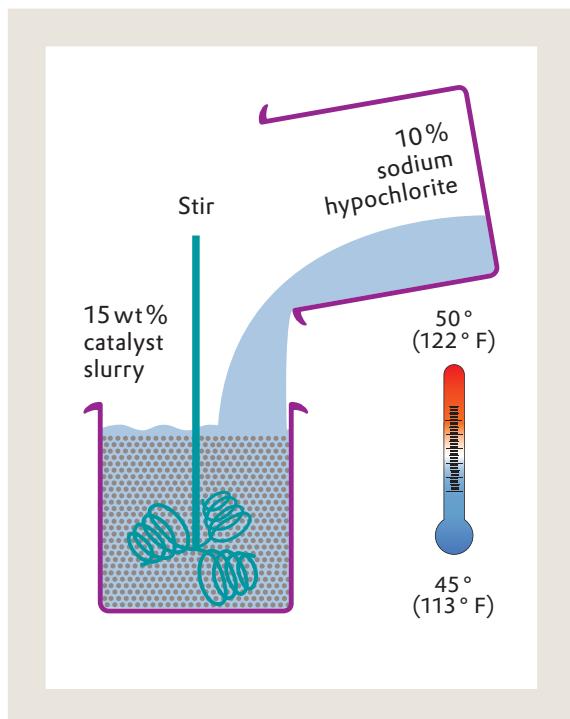
### AMC Spills and Deactivation

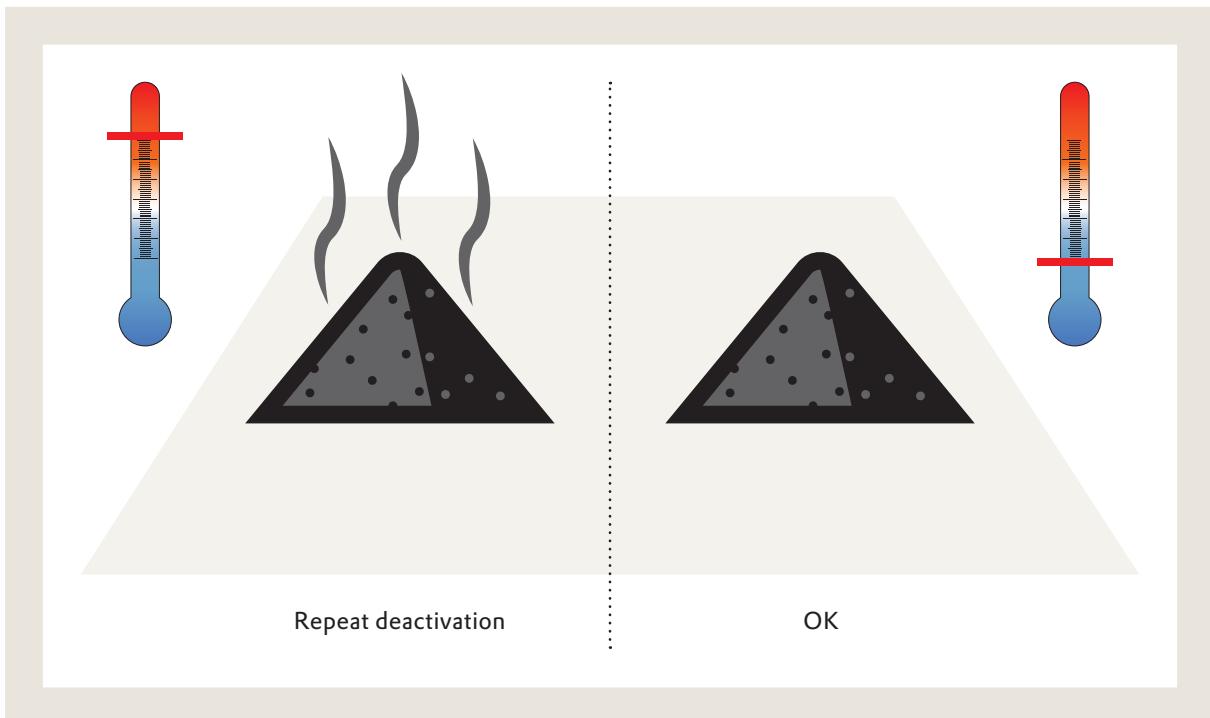
#### Spills

Catalyst spills should be immediately flushed from the work area with water into a wastewater collection system, to be treated for toxic chemical removal. The catalyst may also be removed from the wastewater collection system and deactivated as described below. The catalyst slurry is caustic, therefore contact of this solution with the eyes, skin, and clothing must be avoided. Contaminated cleaning materials should be considered toxic and pyrophoric, and should be handled with the same precautions as the catalyst itself.

#### Deactivation

Spent and old AMC no longer intended for use should be deactivated by a well-controlled oxidation procedure before disposal. Spent catalysts are still pyrophoric and before deactivation they must be washed free of residual organic compounds and volatile solvents. Catalyst deactivation can be achieved by making a stirred 15 wt % catalyst slurry in cold water followed by very slowly adding an equal volume of either 10 % sodium hypochlorite or 10 % sodium nitrite.





During catalyst oxidation, the temperature of the slurry will increase. After adding the oxidizing salt solution, heat the stirred slurry to 45 – 50 °C for about 60 - 70 minutes before collecting a sample to test the catalyst's pyrophoricity. The pyrophoricity test is performed by allowing a small portion of catalyst to dry on a piece of filter paper. If the catalyst heats up upon drying, then the above deactivation procedure should be repeated. Once the catalyst is no longer pyrophoric, it should be filtered from the slurry and if possible, allowed to remain wet. If the deactivated catalyst must be dried, then do so under conditions that prevent it from becoming airborne.

The catalyst can also be deactivated by bubbling a rapid air stream through a stirred 15 wt % catalyst water slurry at 50 – 60 °C until the catalyst is no longer pyrophoric. During this procedure samples can be collected and tested for pyrophoricity as described above. Depending on the amount of catalyst being deactivated and the mixing characteristics of the slurry, this oxidation could take eight or more hours. Once the catalyst is no longer pyrophoric it should be filtered from the slurry and if possible, allowed to remain wet. If the deactivated catalyst must be dried, then do so under conditions that prevent it from becoming airborne.

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