



Handling Recommendations for Sulficat[®] Treated Catalysts



***IMPORTANT : READ BEFORE HANDLING SULFICAT[®] OFF-SITE
PRESULFIDED CATALYST***

1. General recommendations

SULFICAT[®] Off-Site Presulfided catalysts are supplied to the customer in steel drums with sealed plastic liners. The catalyst should remain stored this way until the customer is ready to load the catalyst into the reactor. At the time of loading, the catalyst may be transferred from the drums into a hopper and then loaded directly into the reactor using an acceptable sock-loading or dense-loading procedure. Storage of off-site presulfided catalyst in any container, other than the plastic-lined drum, should be avoided at all times. If the catalyst must be transferred to other vessels, to facilitate reactor loading, it should be done only at the actual time of loading.

In case of delivery of presulfided catalyst in bulk metallic containers, the storage must be limited in time. Containers must be kept closed during prolonged storage.

Although off-site presulfided catalyst is in itself not pyrophoric, under certain conditions it can react with oxygen. Prolonged exposure of the catalysts to air should be avoided. Off-site presulfided catalyst is considered a self-heating material, according to UN regulations, and belongs to UN class 4.2 - 3190.

It is recommended to load off-site presulfided catalyst under nitrogen, especially in large reactors and in hot or humid climates. However, loading under air is acceptable, provided that directly after the loading, air is purged out with nitrogen and the catalyst is blanketed with nitrogen during any period of storage. Under no circumstances should presulfided catalyst be stored under hydrogen, even at low temperatures.

Persons working with the catalyst during handling and loading may notice an odour which is the result of residual solvent used in the preparation of the presulfided catalyst. This solvent is an aliphatic (saturated) hydrocarbon solvent. It is recommended that personnel involved in handling and loading of the catalyst be properly clothed, e.g. long-sleeved shirts and gloves. Furthermore, it is recommended that supplied breathing air be used by any person who must handle the catalyst or enter an enclosed area containing the catalyst, e.g. inside the reactor. Sound refinery practice requires communication with personnel inside the reactor.

Refer to the material safety data sheet supplied with the presulfided catalyst and read the caution labels on the drums.

2. Presulfided catalyst loading in air

Catalyst loading under air requires special attention, as described in the following recommendations:

- Nitrogen gas ready to be introduced

A premature temperature increase of catalyst bed during loading may be experienced. Before catalyst loading, it should be checked that nitrogen gas is ready, in case of emergency, in quantities sufficient to purge air from reactor.

- Breathing air

Any person who must handle the catalyst or enter an enclosed area containing the catalyst, e.g. inside the reactor, should have airtight mask for supply of breathing air.

- No air ventilation of catalyst bed

To avoid reaction with oxygen, it is recommended that no air be supplied to catalyst beds through quench line or reactor outlet.

- Measurement of SO₂

During catalyst loading, measurement of sulfur dioxide just above loaded catalyst surface is advised. Generally, SO₂ content is below 1 ppm during loading. If SO₂ content exceeds 5 ppm and/or catalyst temperature exceeds 50°C (120°F), introduce nitrogen gas to quench oxidation reaction.

- Discontinuous catalyst loading (more than two days)

Sometimes catalyst loading requires more than two days. After one day of loading is over, confirm no air ventilation into the catalyst and close up reactor inlet to avoid oxidation reaction during the night or purge reactor with nitrogen. Also, measure oxygen content in the reactor before catalyst loading. During the night, oxygen content might decrease. Days required for catalyst loading in air should be minimized.

- Nitrogen introduction after catalyst loading

After catalyst loading is over, introduce nitrogen gas to purge air as soon as possible. Ensure that oxygen content is less than 0.5 vol%.



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