BSP Multiple Hearth Furnace

Yellow Cake Drying and Calcination

From precipitate to product — one continuous step. Decades of proven service.

What it does

The BSP multiple hearth furnace (MHF) takes uranium precipitate — ammonium diuranate (ADU), uranyl peroxide, or related feed — and produces fully calcined, conversion-ready U_3O_8 meeting ASTM C967 specifications. Drying, decomposition, and calcination occur in one continuous unit operation.

How it works

A vertical, refractory-lined cylinder contains multiple stacked hearths. Slow-rotating rabble arms gently move material across each hearth, ensuring uniform residence time, gas–solid contact, and a controlled temperature profile from drying through full calcination. Feed enters at the top; finished U_3O_8 discharges at the bottom. Combustion gases supply heat; off-gases flow countercurrent for thermal efficiency and integrated handling of moisture, ammonia, and trace volatiles.

Why it beats vacuum drying for yellow cake

Criterion	Vacuum Dryer	BSP Multiple Hearth Furnace
Operating temperature	~ 100–200°C (drying only)	~ 600–800°C+ (full calcination)
Product chemistry	Hydrated, partially decomposed precipitate	Fully calcined U_3O_8
ASTM C967 spec compliance	Often requires secondary processing	Met directly out of the furnace
Process mode	Batch	Continuous, 24/7
Footprint	Dryer + downstream calciner	Single unit operation
Operator intervention	High (load / unload)	Low (continuous feed and discharge)

What BSP delivers

- Process design tailored to your feed (ADU, uranyl peroxide, or alternate).
- Modular, factory-assembled to minimize site construction time.
- Lifecycle service — refractory, mechanical, and process engineering support.

Talk to us

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