

Safety Slide: Raney Nickel



History:

- Developed in 1926 by William Raney, an engineer who invented it for difficult hydrogenation of vegetable oils



Preparation:

- Ni-Al alloy – made by dissolving nickel metal in molten aluminum, followed by addition of chromium or zinc as a promoter to enhance reactivity.
- Excess Al is leached out using concentrated NaOH washes to generate H₂ that embeds the surface area of the NiAl powder.
- Resulting powder is washed with degassed water several times to remove sodium aluminate salts.

Safety:

- Ra-Ni is usually stored as a 50% slurry in water (will eventually become inactive depending on quality of storage).
- Safest handling is to measure out as slurry in graduated cylinder, back-calculate the mass by density.
- Always have liters of water nearby to put out potential fires – do not use CO₂-based extinguishers.
- Dry powder is most dangerous – when filtering do not let filter cake run dry!