tion all the beads were at approximately the same potential.

Why the effect of fluidization on polarization depends on the electrochemical reaction is not clear. It is thought, however, to be linked with the fact that methanol oxidation is kinetically controlled whereas hydrogen peroxide reduction is diffusion controlled. Further, the electrical resistivities of silver and nickel differ ($1.6 \mu\Omega/\text{cm}$ and $7.8 \mu\Omega/\text{cm}$ respectively), and this fact could well be important in determining the overall conductivity of the fluidized bed.

T. B. thanks Clarke Chapman and Co. Ltd, and R. M. the Gas Council, for helping to finance this research.

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Received May 19; revised July 2, 1969.

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New ^{169}Tm Mössbauer Source

ALTHOUGH the lanthanides are rich in Mössbauer isotopes, only a few Mössbauer studies of lanthanide compounds have been reported. This is especially true for thulium compounds, for which there have been several difficulties. First, the relatively short half-life ($t_{1/2} = 3.9 \text{ ns}$) of the Mössbauer ($+3/2$) excited state gives a minimum observable width of 8.340 mm/s ; second, the sources used contain ^{169}Er as the fluoride or oxide and have to be heated to 550 K and 800 K , respectively, to give an unsplit line.

Recently, we have prepared a source of $\text{Na}_3^{169}\text{ErF}_6$ which gives an unsplit line at 300 K and a large resonance effect ($\epsilon \approx 48 \text{ per cent}$) using a 2.3 mg/cm^2 cubic TmAl_3 absorber.

The ^{169}Er was prepared by irradiating 200 mg of 95 per cent enriched ^{168}Er oxide in a flux of 6×10^{12} neutrons/ cm^2/s for 3 days. The oxide was then dissolved in concentrated HCl and the fluoride precipitated by adding hydrofluoric acid. After centrifugation, the supernatant was decanted off and the fluoride was dried in a vacuum. The fluoride was further dried by heating to approximately 150°C for 1 h. After cooling to room temperature, stoichio-

Fig. 1. Pulse height spectrum of the $\text{Na}_3^{169}\text{ErF}_6$ source relative to $^{57}\text{CoPd}$ source.

Fig. 2. Spectrum of a 2.3 mg/cm^2 single line TmAl_3 absorber enclosed between 0.5 mil thick aluminized 'Mylar' against the hexafluoride source, at 300 K .

metric amounts of the erbium fluoride and sodium fluoride were mixed in a quartz tube, purged with nitrogen placed in a vacuum furnace, heated to 300°C for 0.5 h , and then quickly raised to $1,200^\circ \text{C}$. The latter temperature was maintained for 3 h .

Fig. 1 shows the pulse height spectrum of the $\text{Na}_3^{169}\text{ErF}_6$ source relative to $^{57}\text{CoPd}$ source. The position of the 8.42 keV transition of ^{169}Er and the 6.5 keV $K_{\alpha\beta}$ X-ray of ^{57}Co are clearly indicated.

Fig. 2 shows the spectrum of a 2.3 mg/cm^2 single line TmAl_3 absorber enclosed in 0.5 mil thick aluminized 'Mylar' against the hexafluoride source, both at 300 K . The observed uncorrected resonance effect was approximately 48 per cent .

It is tempting to suggest that this highly symmetrical hexafluoro environment could provide single line sources for all the rare earth Mössbauer active isotopes (S. L. Ruby, private communication) and that the corresponding absorbers could be used as standards for reporting future Mössbauer isomer shifts.

This work was supported by the US Atomic Energy Commission.

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Received May 22, 1969.

Inexpensive Method for measuring Tritium in the Presence of Caesium Chloride

It is difficult to assay a weak β -emitter such as tritium in the presence of high salt concentrations, for example, after the equilibrium sedimentation of radioactively labelled nucleic acids in density gradients of caesium chloride. The insolubility of DNA in dilute perchloric or trichloroacetic acids allows DNA trapped in filter