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TABLE II
Summary of Runs in Al₂0₃-lined Cells

Pressure (kb)	Temp (°C)	Time (min)	Starting Material	Results
50	1800	2	CrO3	CrO ₂
25	1800	1	Cro3	CrO ₂
25	1900	1	CrO ₃	CrO ₂
50	1300	3	Cro3	CrO ₂
50	1175	5	Cr ₂ 0 ₅	CrO ₂
50	2000	2	CrO ₂	Cro ₂

The phases in the quenched material were identified by x-ray and optical (both reflected and transmitted light) observation and by a qualitative magnetic check for ${\rm CrO}_2$. The stoichiometry of the ${\rm CrO}_2$ phase was checked by weight loss according to the reaction

$$2 \text{ Cr0}_2 \rightarrow \text{Cr}_2 \text{O}_3 + \frac{1}{2} \text{ O}_2$$

and the deviation from stoichiometry was found to be negligible.

Results and Discussion

The results indicate that ${\rm CrO}_2$ can be maintained without decomposition at temperatures up to $2000^{\rm O}{\rm C}$ for short times (at least 2 minutes) and at temperatures to at least $1200^{\rm O}{\rm C}$ for 60 minutes. Besides the characterization of ${\rm CrO}_2$ structurally, chemically, and magnetically, another convincing proof for the stability of ${\rm CrO}_2$ in the $1200^{\rm O}\text{-}1550^{\rm O}{\rm C}$ temperature range was an increase in grain size of about one order of magnitude over that of the original approximately 5 μ to 10μ powder without the formation of ${\rm Cr}_2{\rm O}_3$.

Cr₂O₃

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