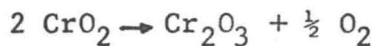


TABLE II
Summary of Runs in Al₂O₃-lined Cells

<u>Pressure</u> (kb)	<u>Temp</u> (°C)	<u>Time</u> (min)	<u>Starting</u> <u>Material</u>	<u>Results</u>
50	1800	2	CrO ₃	CrO ₂
25	1800	1	CrO ₃	CrO ₂
25	1900	1	CrO ₃	CrO ₂
50	1300	3	CrO ₃	CrO ₂
50	1175	5	Cr ₂ O 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 CrO₂. The stoichiometry of the CrO₂ phase was checked by weight loss according to the reaction



and the deviation from stoichiometry was found to be negligible.

Results and Discussion

The results indicate that CrO₂ can be maintained without decomposition at temperatures up to 2000°C for short times (at least 2 minutes) and at temperatures to at least 1200°C for 60 minutes. Besides the characterization of CrO₂ structurally, chemically, and magnetically, another convincing proof for the stability of CrO₂ in the 1200°-1550°C temperature range was an increase in grain size of about one order of magnitude over that of the original approximately 5μ to 10μ powder without the formation of Cr₂O₃.