



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Lincoln L. Tran	Project Number 22545
Project Title Taking the Pressure off Chrome Alum Crystal Growth	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective to determine whether chrome alum crystals grown at pressure lower than normal atmospheric pressure would grow faster than crystals grown at normal pressure at sea level.</p> <p>Methods/Materials Materials: Powdered chrome alum, bell jar, vacuum pump, beakers, graduated cylinders, variop measuring apparatus.</p> <p>Methods: Prepare supersaturated solution of chrome alum (200 ml H₂O and 120 g chrome alum). Upon formation, select two small seed crystals from saturated solution. Suspend seed crystals in separate beakers containing equal volumes of solution. Place one inside bell jar and attach to vacuum pump. Pump air out of the jar everyday for ten days.</p> <p>Results The crystal grown at normal atmospheric pressure had a mass of 0.62 grams and a volume of 1.27 cm³. The mass of the smaller crystal was 0.41 grams and had a volume of 0.77 cm³.</p> <p>Conclusions/Discussion Crystals grown in lower atmospheric pressure grew slower than crystals grown in normal atmospheric pressure at sea level. Decreasing the pressure should have allowed for faster evaporation of the liquid at lower pressure thus forming crystals faster (the solute should have come out of solution). Lowering the pressure did not increase crystal formation.</p>	
Summary Statement To determine if lowering pressure increased chrome alum crystal growth.	
Help Received Mr. Ryan helped set up vacuum apparatus. Participant in UCI/Costa Mesa High School Science Fair Initiative under direction of Dr. Lidia Yoshida	