



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> Megan L. Serpa	<b>Project Number</b> <b>J0516</b>
<b>Project Title</b> <b>The Formation of Frosty Diamond Crystals in an Aqueous Solution of Aluminum Potassium Sulfate</b>	
<b>Objectives/Goals</b> The purpose of this experiment is to evaluate "Frosty Diamond Crystal" growth if one of the following: the "seed" (pure aluminum potassium sulfate), the growing chemical solution (aluminum potassium sulfate dissolved in water), or the "base rock" substrate (granite) is removed. This experiment will test the hypothesis that the seed, the growing chemical solution, and the substrate are required to be simultaneously present for crystal growth.	
<b>Abstract</b> Four ceramic growing cups of equal size and shape were labeled "control", "no growing chemical solution", "no substrate", or "no seed." The "control" contained all three of the variables; the seed, the growing chemical solution, and the substrate. The cup labeled "no seed" contained the growing chemical solution and substrate only. The cup labeled "no growing chemical solution" contained the seed, water, and substrate. The cup labeled "no substrate" contained the seed and growing chemical solution only. The crystals were observed and data were collected in chart form for four days. Crystal growth was recorded according to size and number of crystals observed on each day. Any crystal larger than or equal to 1/2 inch was recorded as "large". Any crystal smaller than 1/2 inch was recorded as "small"	
<b>Methods/Materials</b> The crystals were observed and data were collected in chart form for four days. Crystal growth was recorded according to size and number of crystals observed on each day. Any crystal larger than or equal to 1/2 inch was recorded as "large". Any crystal smaller than 1/2 inch was recorded as "small"	
<b>Results</b> Results showed that crystals could not grow without the chemical growing solution, but could grow in the absence of the seed and substrate. It was also noted that when the seed was present, crystals were greater in number and smaller in size relative to the samples which received no seed.	
<b>Conclusions/Discussion</b> It was concluded that Frosty Diamond Crystals can be grown if the seed and substrate are removed, but will not grow if the growing chemical solution is removed. Furthermore, the presence of seeds increased the number of crystals grown, while decreasing the size of the crystals relative to samples which received no seed. These data do not support our hypothesis. However, it was discovered that crystal formation under the conditions used in this evaluation can be manipulated to produce crystals of differing size.	
<b>Summary Statement</b> To evaluate the relative importance of of the seed, the growing chemical solution, and the substrate in the growth process of Frosty Diamond Crystals.	
<b>Help Received</b> Steve Serpa (father) supervised the use of chemicals and heat in the growth process. Matt and Lori Milnes (uncle and aunt) proof-read text for spelling and and grammar	