

**SOP: R013****Preparation of Dittmer-Lester Reagent****Materials**

25 M H<sub>2</sub>SO<sub>4</sub>  
MoO<sub>3</sub> (molybdic oxide)  
B & J grade H<sub>2</sub>O  
250 ml pyrex bottles  
Whatman filter cones  
Large beakers  
Stir bars  
Glass funnel  
Fume hood  
Stir plate with heat

**Protocol**

1. \_\_\_\_ Working in the chemical fume hood, add 16.044 g MoO<sub>3</sub> to 400 ml H<sub>2</sub>SO<sub>4</sub>.
2. \_\_\_\_ Boil gently on hot plate until the MoO<sub>3</sub> is dissolved.
3. \_\_\_\_ Allow solution to cool, cover bottle with foil, and label as Dittmer-Lester Solution I.
4. \_\_\_\_ Remove 200 ml Solution I to a separate bottle and add 712 mg powdered molybdenum. Boil gently for 15 min.
5. \_\_\_\_ Filter the cooled solution through fluted filter cones, and label this bottle Solution II.
6. \_\_\_\_ In an Erlenmeyer flask mix equal volumes of Solutions I and II with 2 volumes H<sub>2</sub>O. (Note 1)
7. \_\_\_\_ For application transfer to a 250 ml spray flask (Kontes), then spray lightly and uniformly across TLC sheets. (Note 2)

**Notes**

- (1) The final solution should be greenish yellow. Too little water will result in a blue solution, while too much will render it yellow.
- (2) Phosphate esters will be visualized as blue spots on a light blue-gray background, but after ~1 hour the background will darken to obscure any bands. Scan shortly after visualization for a permanent record.