



TESTING AND DEVELOPMENT OF A CHITOSAN/GRAPHENE OXIDE (CSGO) MEMBRANE

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INTRODUCTION

- THE PURPOSE OF THIS PROJECT IS TO FURTHER DEVELOP, TEST, AND CHARACTERIZE A COMPOSITE CHITOSAN/GRAPHENE OXIDE (CSGO) MATERIAL THAT CAN BE USED TO ISOLATE CONTAMINATION ON A SURFACE AND POSSIBLY ABSORB/ADSORB CONTAMINATION.



MATERIALS

- CHITOSAN IS BLANKETY BLANK AND WE USE IT BECAUSE BLANK
- GRAPHENE OXIDE IS BLANK AND WE USE IT BECAUSE BLANK



Chitosan



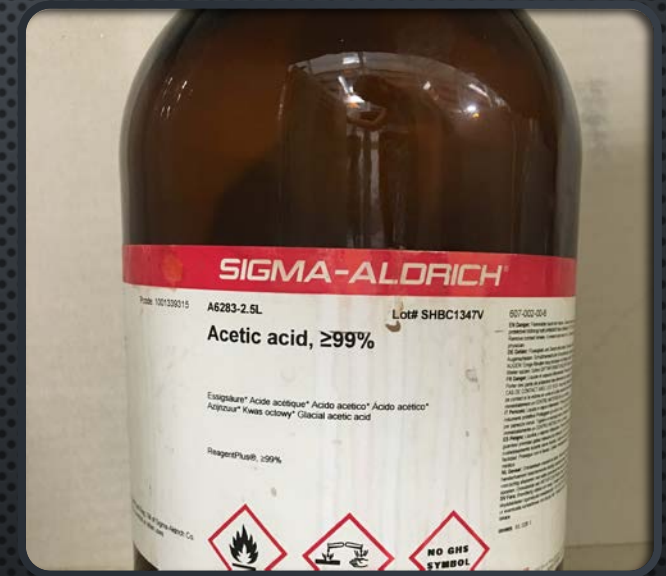
Graphene Oxide

MATERIALS

- THE MOLDS USED WERE BLANK DIMENSIONS AND COULD BE ADJUSTED TO MAKE THEM LONGER OR SHORTER USING INSERTS
- THE ACETIC ACID WAS USED BOTH TO DISSOLVE THE CHITOSAN IN THE CSGO SOLUTION AND TO APPLY THE CSGO MEMBRANE TO THE ALUMINUM COUPONS



Molds



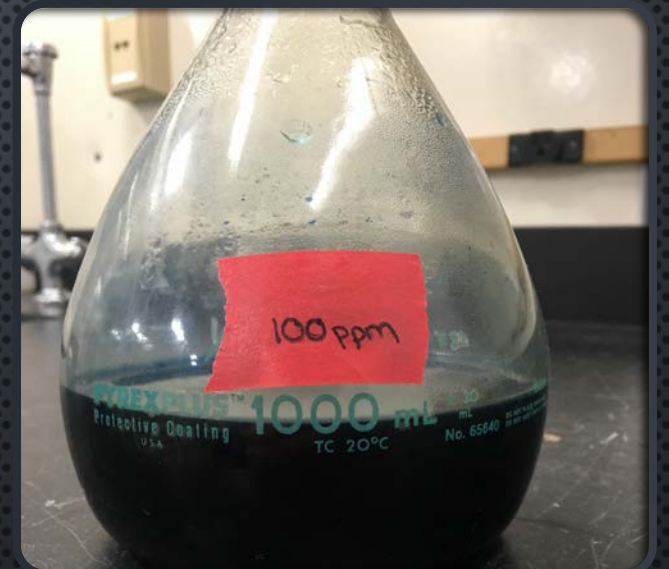
Acetic Acid

MATERIALS

- THE COUPONS THAT WERE USED WERE MADE OF ALUMINUM AND WERE BLANK DIMENSIONS
- THE METHYLENE BLUE WAS USED AS A CONTAMINANT SIMULANT THROUGHOUT THE STUDY. IT WAS USED AT VARYING CONCENTRATIONS INCLUDING 50, 20, AND 10 PPM



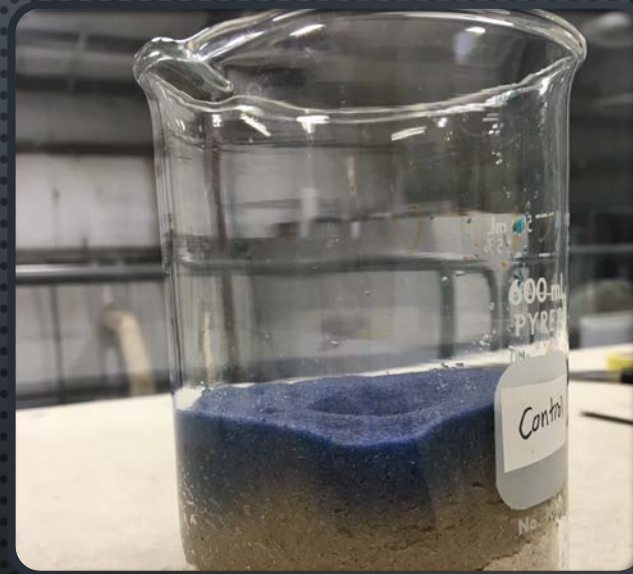
Aluminum Coupons



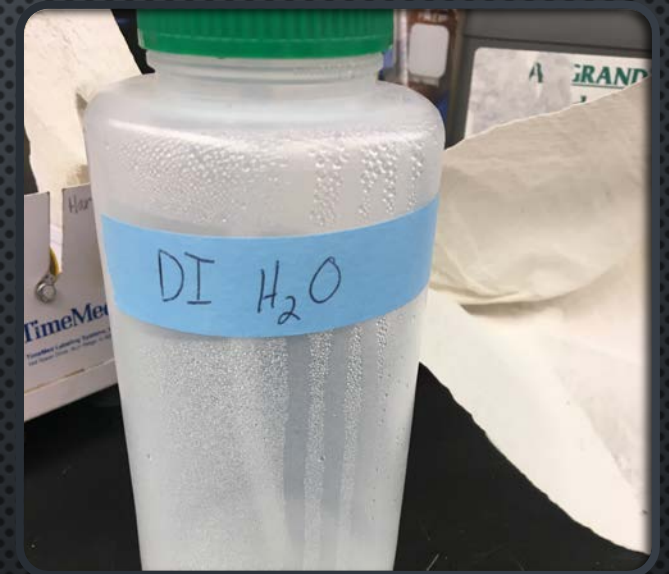
Methylene Blue

MATERIALS

- FOR ONE OF THE EXPERIMENTS DURING THE STUDY, CLEAN WHITE SAND WAS USED AND MIXED WITH METHYLENE BLUE.
- FOR EVERY EXPERIMENT THAT INVOLVED WATER, DEIONIZED WATER WAS USED.



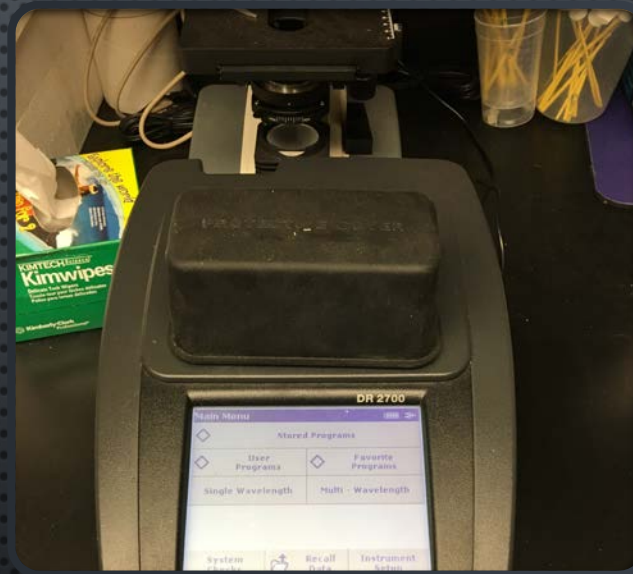
Clean White Sand



DI water

MATERIALS

- A UV/VIS SPECTROPHOTOMETER WAS USED TO DETECT THE ABSORBANCE OF BLUE LIGHT IN DI WATER FROM THE METHYLENE BLUE THROUGHOUT THE STUDY
- A SCANNING ELECTRON MICROSCOPE WAS USED TO CHARACTERIZE AND COMPARE THE CSGO MEMBRANES BEFORE AND AFTER EXPERIMENTS



UV/VIS spectrophotometer



Scanning Electron Microscope