Pressure Assisted Cryogenic Carbon Dioxide Extraction: A Novel Method of Carbon Sequestration

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A) Stopping carbon emissions now is a start, but it's not enough. We've already passed the point of no return. Even if every single coal fired power plants was shut down, every car converted to electric, and all production of natural gas ceased, the average global temperature will still rise. The project I plan on presenting is a way to mitigate the rising global temperatures by extracting carbon dioxide from the atmosphere. B) The condenser column is packed with crushed dry ice and allowed to sit for ten minutes. Then, liquid nitrogen is ladled into the column until it is cooled to temperature. Then, compressed air (175 psi) is allowed to move through the condenser and into the reception flask. As liquid condenses, pressure lowers. The compressor pressure is not allowed to fall below 75 psi. Once the reception flask is filled, it is disconnected from the system and vented through a steel wool filter, which is then weighed, and compared to the mass before the experiment. C) Test 1-4: no yield (see lab notes) Test 5: 0.03g Test 6: no yield (see lab notes) Test 7: 0.02g D) More testing is required. Factors that influence rates of condensation include the magnitude of the heat differential between the compressor and the condenser. The process overall has promise, however it does use large amount of energy. Further improvements would involve a fractional distillation system to separate off carbon dioxide instead of the steel wool filter.

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