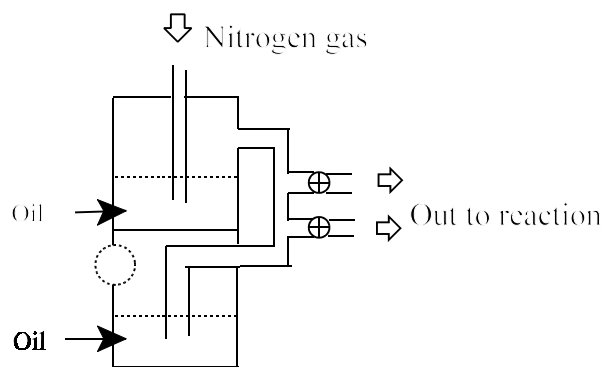


Reflux under an inert atmosphere:

Many reactions will take a period of time to finish. Sometimes, this period can be shortened by raising the temperature of the reagents. This in turn raises the average kinetic energy of the individual molecules, allowing them to collide with each other resulting in a more effective outcome.

Simply raising the temperature of the reaction mixture might cause the solvent to evaporate (even if the boiling point has not been reached) which in turn might cause a fire or the decomposition of the remaining solids. A water-cooled condenser is attached to the top of the flask so that solvent vapour will condense and drip back into the reaction mixture. This, then allows the boiling point of the solvent (which is easily controllable) to be chosen as the temperature of the reaction. This is known as a reflux.



An oil-bubbler used for monitoring the use of nitrogen as an inert atmosphere

If the reaction is air-sensitive, then it is usual to conduct the whole process under an inert atmosphere. The usual choice is nitrogen gas - which is supplied to each fumehood from a cylinder at the front of the room. The nitrogen is taken from the outlet, through a bubbler system and then connected to the cold side of the condenser. This prevents hot solvent from entering the nitrogen lines.