# Eggshells as a Substituent for Lowering the Rate of Combustion

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Fire is one of the accidents that can cause death and property damage to leave a deep impression on the victim. It can be avoided if precaution steps are taken at an early stage. The selection of paint is very important because the paint content has a fuel that can encourage combustion to occur faster. This project uses waste material which is egg shells as a mixture of paint in walls that will release carbon dioxide when reacting with fire. Combustion requires a fossil fuel, oxygen gas and heat as factors to occur and if we can interfere with one of these factors, then combustion will continue but at a slower rate. Victims of fire will have more time to save themselves and their possessions. Egg shells contain calcium carbonate which can release carbon dioxide gas that can retard combustion. The egg shell is crushed into a powder form which is then mixed in paint as an additive in the specified ratio. The variables that were manipulated were the mass of egg shell powder, which is 5, 10, 15, 20, 25, 30, 35, 40, 45 and 50 grams (for each 50 ml of paint) while the reaction variable was the time taken for the wooden blocks to burn. The variable that is kept constant is the type of paint used (Dulux). The released carbon dioxide gas has a higher density than the oxygen gas in the air. The carbon dioxide gas that will coat the surface of the paint on the bricks will in turn prevent oxygen gas from assisting combustion to occur on the surface of the paint. Thus, the rate of combustion will occur more slowly than ever because of the disruption of the oxygen gas supply factor of the surrounding air.

**Awards Won:**