

Result 2

When burned the remaining burned out became 0 when the washer liquid was less than 20%.

I think that it is desirable not to burn out if it thinks of practical application. And the burning time was shortened by entering the washer fluid.

Summary

We found that water is contained even in washer fluid so it will freeze. Also, because the washer fluid used this time was not a new one, we will use a new one in the next experiment.

Next, because there differing ratios of burnable and unburnable, we want to learn which ratio is the most practical. And because the burning time did not increase, I want to investigate the change in combustion efficiency by changing the amount of surfactant etc.



Avoid freezing emulsion fuel

First grader 14 HR group 1
MEMBER



Introduction



Emulsion fuel is combined with water, oil and surfactant.

Just like mayonnaise is mixed;

Yolk + Oil + Vinegar

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Mayonnaise



Emulsion fuel is used in diesel engines and boiler fuel.

Purpose

We'd like to solve the problem of freezing water inside emulsion fuel. And we'd like many people living in cold areas to use emulsion fuel.

Hypothesis

We think using washer fluid instead of water will solve the problem.

Washer fluid for Car's front glass



Experiment 1

To find out the ratio of mixture Mix washer fluid and kerosene, changing the ratio of mixture.

And put the mixture in the freezer to freeze. Freezer's temperature is always -18°C .

Materials 1

• beaker • pipette • glass rod • methanol
• kerosene • distilled water • surfactant

• water • washer fluid
(Ingredients of washer fluid)

Experiment 2

Burn the mixture. We will mix washer fluid and kerosene in some ratios.

Materials 2

• beaker • pipette • graduated cylinder
• crucible • magnetic mixer • lighter
• glass rod • test tube clamps

Result 1

It didn't freeze until kerosene : washer fluid = 5 : 5
It froze. We increased the washer fluid amount.

Also only kerosene didn't freeze.