

How Permanent is Permanent?

M3-15 CHEMISTRY

Question

What solvent removes permanent marker the best?

Abstract

This experiment was conducted to find out which stain remover worked the best. To determine the best stain remover, a 5 cm line was drawn on equal sized squares of fabric. The hypothesis of laundry detergent removing the stain the best was supported by removing the most of the stain on the squares of fabric.

Hypothesis

If I test oxi-clean, laundry detergent, and vinegar, then laundry detergent will remove the permanent marker the best because laundry detergent is made to remove stains.

Materials

- » 1 Black Sharpie
- » 3 XL T-Shirts
- » 20 Tablespoons vinegar
- » 20 Tablespoons Oxi-Clean
- » 20 Tablespoons All Free & Clear (laundry detergent)
- » 1 Tablespoon

Procedures

1. Gather all materials
2. Cut 3 of the 4 T-shirts into 20 equal pieces (10 cm x 10 cm), each independent variable will use 20 pieces.
3. Draw a 5 cm line in the middle of each piece of fabric with the permanent marker.
4. Let the marker sit for 8 hours
5. After 8 hours, pour 1 tablespoon of the laundry detergent on each piece of fabric. (1 tablespoon per piece of fabric)
6. Repeat step 5 using vinegar for 20 pieces and Oxi-clean for 20 pieces.
7. Let the soluble set for 24 hours.
8. Rinse each piece of fabric with lukewarm water for 30 seconds.
9. Record results.

Variables

- » Dependent Variable – how well the stain was removed
- » Independent Variable – type of solvent used to remove the stain
- » Constants – type/color of shirt, type/color of marker, location, duration of soaking in solvent/rinsing time

Pictures

Before



After – Laundry Detergent



After – Oxi Clean



After - Vinegar



Results

Laundry detergent removed the permanent marker stain the best.



(From left to right)
Laundry Detergent, Oxi-Clean, Vinegar

Conclusion

Laundry detergent did the best job of removing the permanent marker stain, followed by Oxi-Clean. The transparency of each stain was used to conclude which variable was the best. Laundry detergent is a solvent that has one polar end and one nonpolar end, letting it remove the stain the easiest. As seen in the pictures, laundry detergent is the only solvent (out of the 3 tested) that removed the stain significantly. Based on the results, the hypothesis that laundry detergent would remove the stain the best was supported.

Works Cited

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