

Talc Products Teaching Materials

Dr. Audrey C. Rule

Objective: Students will be able to match cards that tell talc properties and uses with corresponding talc products to demonstrate their awareness of the uses of talc.

Preparation of Materials

1. Print the accompanying pages on a printer (in color, if possible).
2. Cut out the card fronts and backs from the printed pages. Use a paper cutter if possible so that the edges are straight.
3. Cut 12 squares of mat board measuring $3\frac{1}{2} \times 3\frac{1}{2}$ inches. Glue the card fronts that list talc properties to the fronts and the corresponding product pictures to the backs.
4. Obtain a plastic shoebox. Use wide clear package tape to affix the label "Uses of the Clay Mineral Talc" to the outside of each end of the box.
5. Cut out the "Directions" card and glue to a mat board rectangle measuring about $4\frac{1}{2}$ by 6 inches.
6. Find an example of each of the products that will fit into the shoebox.

Lesson Instructions

Pass around a hand specimen of talc. Ask students to brainstorm its properties (white, slippery, powdery, soft, etc.) Then ask students to suggest any uses they can for this mineral (often students are aware that talc is used in body powder.) Finally, allow students to work in small groups to match cards that list properties of talc with corresponding products. They will probably be surprised at the many uses of talc.

Properties of Talc

Sheet structure on atomic scale

White color when pure

Naturally occurs as fine particles and larger crystals

Can be milled to a fine powder

Slippery, soft to touch

Water resistant

Ultraviolet ray resistant

Thermal resistant

Electrical resistant

Talc sheets are neutral and held together by weak van der Waals bonding which allows the layers to easily slide over each other.

Chemically inert

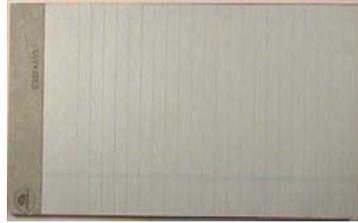
Platy particles suspended in a liquid will link together to coat and protect a surface when dry.

Carries perfumes

Talc forms in metamorphic rocks and also as fine particles in some soils.

- Gives smoothness to the surface
- Fills in holes to reduce porosity and prevent “bleeding” of ink
- Adds opacity, brightness, and whiteness
- Reduces the cost
- Keeps sheets from sticking together

Paper



Talc is a filler and coating for paper. The paper industry is the largest consumer of talc.

- Blends well with oleoresins in plastics
- Increases UV resistance of plastics
- High thermal resistance- keeps surface cool in sunshine
- Increases impact absorbing strength
- Improves stiffness & hardness

Plastic Outdoor Furniture



Talc is a filler in garden furniture plastics.

- Thermal resistance allows surface to remain cool under windshield
- Blends well with oleoresins in plastics
- Resists UV radiation from sun
- Improves impact strength, stiffness, tensile strength.

Dashboard Plastic Parts



Talc is a filler in automobile dashboard plastics.

- Resists moisture - doesn't wash off with tears
- Provides an opaque, white base for colors
- Adheres to skin
- Odorless
- Smooth texture

Face Powder



Talc is a main ingredient in face powder

- Platy structure links the film together.
- Improves durability of surface.
- Inhibits rust and corrosion
- Thickens the liquid to reduce running
- Reduces the amount of pigment needed

Enamel Paints



Talc is a filler in enamel paints.

- Excellent thermal resistance
- Superior electrical resistance
- Blends well with other clay minerals
- Pure, white

Electrical Ceramics



Talc is a filler in electrical insulation ceramics.

- Resists moisture - doesn't wash off with tears
- Provides an opaque, white base for colors
- Adheres to skin
- Odorless
- Smooth texture



Eye
Make-up

Talc is a base for eye make-up.

- Acts as a binding agent to hold ingredients together
- Gives hardness to the cake
- Carries perfumes
- Finely ground - smooth texture
- Inert, free from impurities
- Low-cost filler

Bar Soap



Talc is a filler in bar soaps
(5 to 40% of bar).

- Very pure, bacteria-free
- Chemically inert
- Can be compressed to form tablets
- Bright white color
- Odorless

Pharmaceutical Tablets



Talc is a filler in
pharmaceutical tablets (pills).

- Blends well with oleoresins in plastics
- Increases UV resistance of plastics surrounding monitor
- Superior electrical resistance
- Improves stiffness and hardness of plastic housing
- Gives dimensional stability to thin walls

Computer Hardware
Coverings



Talc is a filler in computer
bodies.

- Platy nature holds coating flat, bonds it to surface
- Improves stain resistance
- Improves durability
- Resists water
- Enhances smoothness of application
- Controls amount of gloss

Shoe Polish



Talc is a filler in shoe
polish.

- As a filler for reducing cost
- Inert, harmless to skin
- Carrier of detergents
- Carrier of perfumes
- Finely ground into a powder
- Resists caking

Powdered Laundry Detergent



Talc is the most popular filler in
powdered laundry detergents.

Uses of the Clay Mineral Talc

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Directions

- Lay out all of the talc products.
- Turn the cards over so that the statements on the colored mat board sides face up (photos on undersides).
- Read the purposes/ functions of using talc in each product.
- Match each set of statements with the correct product.
- Look on the back of the card to check your work.
- Did you know talc was so useful?

Uses of The Clay Mineral
Talc

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Talc