

Material Properties Tactile Qualities



Acrylonitrile butadiene styrene (ABS) is a common thermoplastic polymer. Its glass transition temperature is approximately 105 °C (221 °F). ABS is made by adding butadiene during the manufacture of AS/SAN, resulting in a hard and durable plastic that is stable through a broad range of temperatures. ABS combines the strength and rigidity of acrylonitrile and styrene polymers with the toughness of polybutadiene rubber. While the cost of producing ABS is roughly twice the cost of producing polystyrene, it is considered superior for its hardness, gloss, toughness, and electrical insulation properties.

Initial State

Forms / Shapes

Acrylonitrile Butadiene Styrene plastic is a thermoplastic resin commonly used for injection molding application. Therefore it is strong, sturdy, and hard because of these features. Acrylonitrile Butadiene Styrene is widely used for purposes ranging from car bumpers and motorcycle helmets, musical instruments, golf clubs and Lego. It has longer lifespan when compared to other plastic materials.



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Plastic

Acrylonitrile butadiene styrene

IAT 336 Final Project

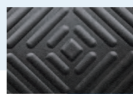


Designers/Manufacturers

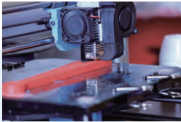
- Panasonic Radio (Model R-725)
Designer: Unknown Designer
Manufacturer: Matsushita Electric Industrial Co. Ltd. , for National Panasonic
Material: ABS plastic, metal
National Panasonic introduced Toop a Loop radio in 1972. It rotates device to open the speaker to turn on the radio.

Texture / Patina

Acrylonitrile Butadiene Styrene material can be used as VR device design since it is strong, sturdy and hard. Acrylonitrile Butadiene Styrene are used largely for mechanical purposes. These properties are little affected by temperature and atmospheric humidity in the acceptable operating range of temperatures. Therefore even the user sweats during wearing the VR device, since the Acrylonitrile Butadiene Styrene material is strong for humidity, it will not be harmed.



Fabrication Process



Acrylonitrile butadiene styrene can be done a lot of things during its fabrication process since it is the material that easily machined. It can be cutted during the progress by sawing, die-cutting and shearing. ABS can be changed the shape of products by turning. It can be performed with holes by drilling, and it can be created curved profile with milling. In addition, ABS can also be chemically attached to itself and to other similar plastics.

Finishing Qualities



After ABS is molded a product, it can be embossed to create patterns on the surface to make the product more attractive and create speciality to each product. And ABS can also be painted on the surface to prevent Ultraviolet radiation (UV), and to make the surface look better.

History

First original motorcycle helmet created by ABS with leather covered in pre 1900. It only protected top of the head, did not covered whole face.

Into the 1950s, motorcycle helmet was developed as pudding style which covered and protected overall face and comes with vision protection as well.

Since 1980s, it kept development functions to safe drivers' life and uninjured drivers' head and eye. Also helmet was created with lightweight and stylish.



Tactile Qualities



Combed cotton would feel a little rough due to the raised surface of the waves and stiff to the touch. It can also feel warm due to its high thermal conductivity properties.

- Little bit rough & Stiff
- High thermal conductivity
- Light-weight & strong

Texture / Patina

The texture of combed cotton is softer because it lacks short threads to stick out and prickly, and all dirt and impurities have been removed from the thread. Combed cotton is also stronger, because shorter and breakable fibers have been removed through combing. In addition, the straightened fibers lie together more tightly after combing, making combed cotton thread less likely to fray and unravel. Because the combing process removes volume and adds an extra step, the resulting textile will be slightly more costly. Many companies prefer to use combed cotton for clothing and bed linens because of the softness and tensile strength.



Fabrication Process

Combed cotton is unlike the metal or plastic, to start its fabrication process, it requires to be carding first. As many other cottons, it needs to be disentangled, cleaned and intermixed fibres to produce the continuous web or sliver suitable for subsequent processing.

Designers / Manufacturers

Google recently introduced VR called daydream view. Daydream view was created by cloth fabric to reduce lightweight of device to feel softness on device and burdenless on their head while they are using daydream view.



Finishing Qualities

Once the combed cotton produced the continuous web, it can be dyeing to paint colors. Also, combed cotton is different than other kind of materials, it is not just paint on the surface, since when it is being dyed, combed cotton would absorb the color into the material, so the whole web would be appeared into that color, and to produce the final product later.



Material Properties



Combed cotton is an extremely soft version of cotton made by specially treating the cotton fibers before they are spun into yarn. As a general rule, combed cotton is slightly more expensive than conventional cotton. The extremely soft, strong material is ideal for making bed linens and clothing which will be worn against the skin. If the textile used in a cotton product is combed cotton, it will usually be clearly identified.

Initial State

Forms / Shapes

Combed cotton lining is usually used for clothes since the texture of combed cotton is soft. It lacks short threads to stick out and prickly, and all dirt and impurities have been removed from the thread. Also Combed cotton is also stronger because shorter and breakable fibers have been removed through combing. In addition, the straightened fibers lie together more tightly after combing. Therefore this material is often used as clothes.



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