Audaciously large, round ones or the traditional aviators: Which ones are you flaunting this summer? Sunglasses might help you make the perfect fashion statement but don't forget your eyes are extremely light sensitive and can be easily damaged by overexposure to radiation in the visible and non visible spectra. So, what are sunglasses made of?

SUNGLASSES: ALL ABOUT FASHION AND FUNCTION!

A pair of light-filtering lenses

- Made of polycarbonate (colourized plastic). Higher quality brands go for glass.
- Soluble organic dyes and metallic oxide pigments are added to the lens material to absorb or reflect light of certain frequencies.
- Various chemical coatings done to enhance viewing by reducing reflection or screening out polarized light.

A frame to hold them in place

- Made from metal or plastic
- Metal frames are made of mixtures of nickel and metals such as silver. Boast of engineered features: sculpted and gimbaled nose-pads, durable hinges with self-locking screws, and flexible temples.
- Higher quality brands manufacturers use combinations of nickel, silver, stainless steel, graphite, and nylon.

The Manufacturing Process

LENSES

Appropriate Additives: Colorant is added to lenses in two ways. 1) By adding color to the molten material before the lens is formed. Here, organic dyes or metallic oxide pigments are added to the plastic. Metallic oxide is incorporated into glass. 2) By chemically post-coating the finished lens.

Pucked: The molten plastic or glass is cast into the lens shape or 'puck'.

LENSES

The Fit: The lens is put in a curve generator, which grinds out the back of the lens. An edge grinder grinds the outer rim to its proper shape and puts a bevel on the edge.

Anti-reflective Material: Lenses may now undergo coating, applied through a vacuum coating method, used to deposit an antireflective layer on the lens surface to reduce internal reflections.

LENSES

Chemicals Used:

- Polycarbonate or acrylic
- Silver halides and silver chloride are used for photochromic properties through the embedding of microcrystalline. Plastic photochromic lenses rely on organic photochromic molecules (for example oxazines and naphthopyrans) to achieve the reversible darkening effect.
- Metallic oxide pigments are added to the plastic for colour. These are highly toxic in nature.

FRAMES

Mounting: Frames hold the finished lenses in place using either a tension mount or screw mount design.

Tension Mounting: Typically used in plastic frames as the dimensions of the lens opening on the front surface of the frame are somewhat smaller than the lens itself. A groove is formed in the periphery of each of the openings. The plastic frame material permits stretching to allow the lenses to snap into these grooves.

FRAMES

Screw Mounting: Typically done in metal frames because metal tends to deform easily and cannot hold the lenses as well. The metal structure has thin extruded sections that are bent into desired shapes. The frame structure surrounding the lens openings forms an open loop into which the lens is inserted. After the lens is inserted, the loop is closed by attaching a screw to the two open ends.

FRAMES

Chemicals Used: Nylon, used in the frames, cannot be melted down and used again, and recycling nylon requires it to be broken down into its constituent chemicals. Burning a tyre yields about one-sixth the energy required to produce it and doing so releases the carbon that constitutes 85 percent of a tyre.

So, the next time you go ahead and strut your latest pair of sunglasses, don't let them colour your view on their environmental hazards. Wear them to ward off the glare but dispose them off with care!