ULTRAVIOLET (UV) RADIATION & PLASTICS

UV radiation causes changes in the physical and mechanical properties of all industrial textiles.
Kilo Langley (kLY): amount of UV radiation on cm2 per year at a specific location

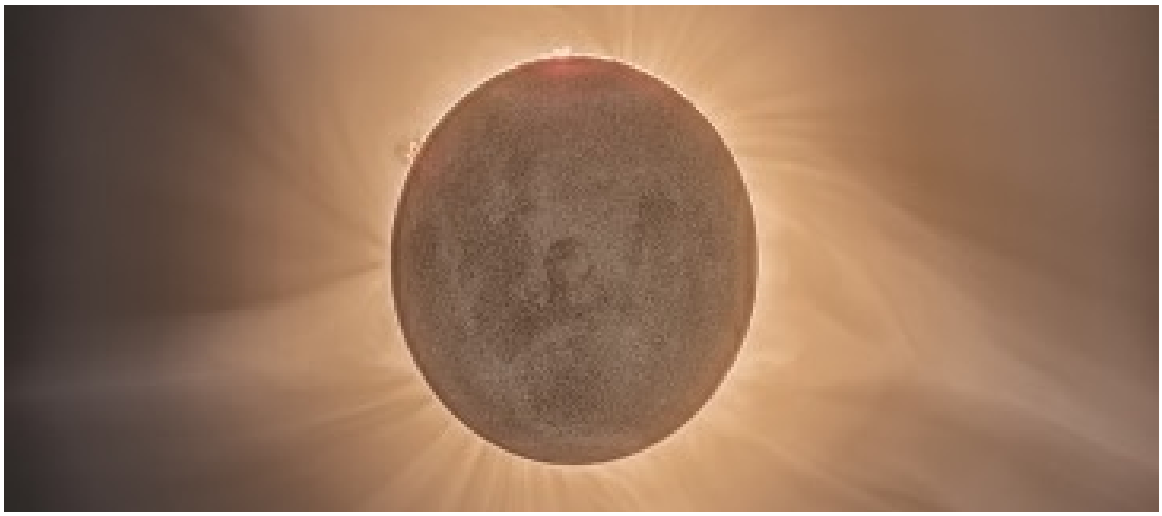

Image source:
https://unsplash.com/photos/solar-eclipse-rjEoFD8l1vo

What happens when UV radiation breaks down the plastics in shade cloth, Polyfilm, or other industrial textiles?

PVC, Nylon
- Discoloration
- Reduced Strength
- Increased Brittleness

Polyester
- Discoloration
- Reduced Strength
- Fibers Breakdown

PE (HDPE, LDPE, LLDPE), PP
- Reduces color and flavor of crops
- Discoloration
- Reduced Strength

Additives to slow impact of UV Radiation

Absorbers: absorbs UV radiation and transforms it into heat or infrared radiation, used for PVC
Stabilizers: Traps free radicals created by UV exposure preventing the radiation from affecting the material; overtime the protection diminishes

- Hindered Amine Light Stabilizers (HALS)
- Carbon Black: Used primarily in PP and LDPE (in HDPE it can cause reduction in strength)

The kLY# for your customer location and additive amount sets product life related to UV