

TECHNICAL BULLETIN

Understanding Static Electricity and Decking Comfort

A Static Electricity and Material Charge

All materials have a tendency to either donate or accept electrons, resulting in a positive or negative charge.

Static electricity occurs when electrically charged particles accumulate on the surface of a material. This happens when a positively charged material comes into contact with a negatively charged one. Different materials generate varying amounts of static electricity when mixed.

We often experience static electricity, such as when walking on a wool carpet with nylon socks.

The Triboelectric Series ranks materials based on their ability to generate static electricity through friction with another material, indicating the charge they will carry.

Relatively Neutral Materials:

Few materials do not easily attract or donate electrons when in contact with other substances. Examples include:

- Cotton
- Steel
- Rubber
- Natural wood

Negatively Charged Materials:

Materials that tend to attract electrons include:

- Wood treated with preservatives containing nickel
- Copper
- Brass
- Silver

- Gold
- Platinum
- Polyester
- Styrene (Styrofoam)
- Polyurethane
- Polyethylene (used in composite decking)
- Polypropylene (used in composite and recycled plastic decking)
- Vinyl/PVC (used in PVC decking)
- Silicon
- Teflon™

Positively Charged Materials:

Materials that tend to give up electrons include:

- Wool
- Nylon
- Glass
- Human hair and skin
- Fur
- Lead
- Silk
- Aluminum
- Leather

Importance in Decking Material Selection:

Choosing decking materials based on their static electricity properties is crucial. When a neutral material like natural wood is paired with either a positively or negatively charged material, there is no potential for static discharge.

However, combining a negatively charged composite, plastic, or PVC decking with a positively charged material like human skin can lead to static electrical discharge or shock.