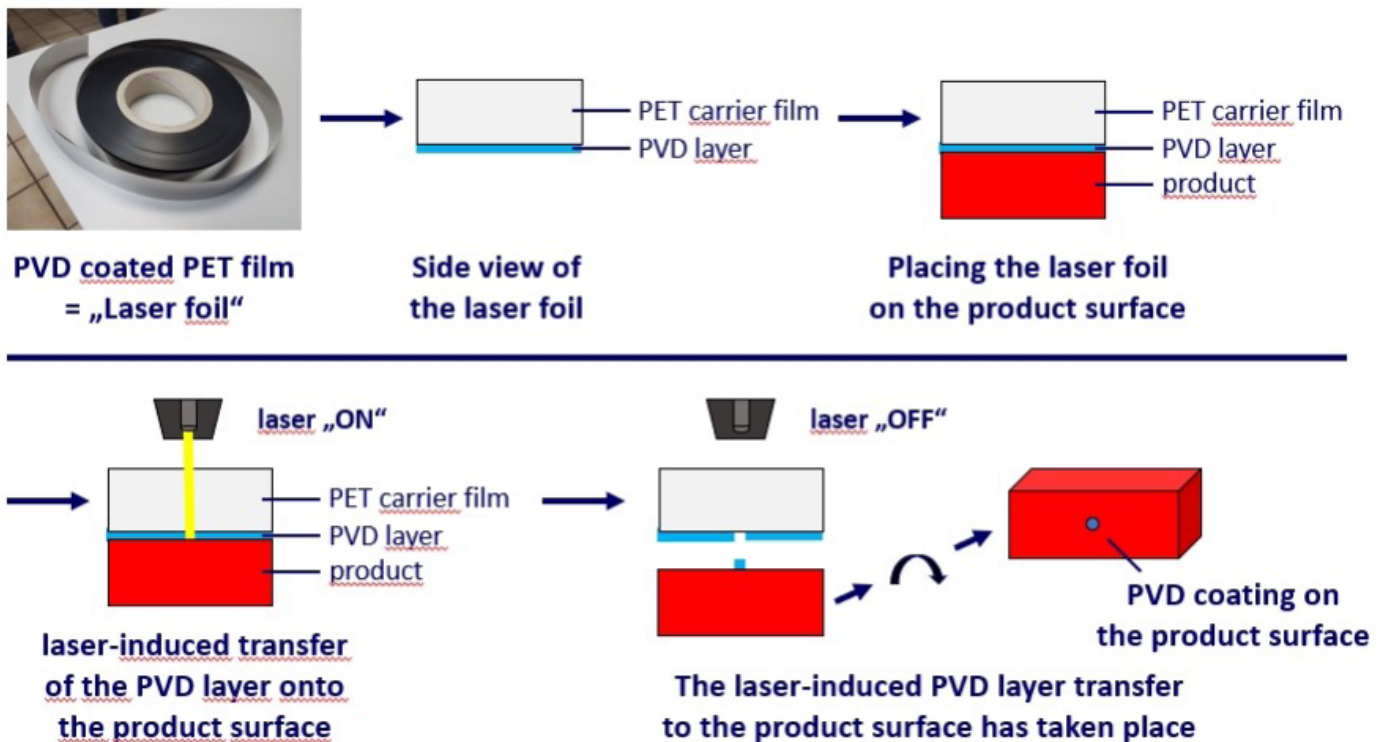


LASER-INDUCED FORWARD TRANSFER (“LIFT”) OF THIN PVD FILMS

The working principle



Characteristics and USP's

- Completely new features due to frozen non-equilibrium states
- Efficient combination of authentication and identification
- Triple security: foil production, labeling and product influence
- Customization and reliable smartphone-based authentication
- Applicable to almost all product surfaces, easy scalability
- Fast and cost-effective marking with standard marking lasers
- Resource-saving and exclusive use of harmless materials
- Virtually no waste after laser-based cleaning and reuse

ARA-Authentic – examples

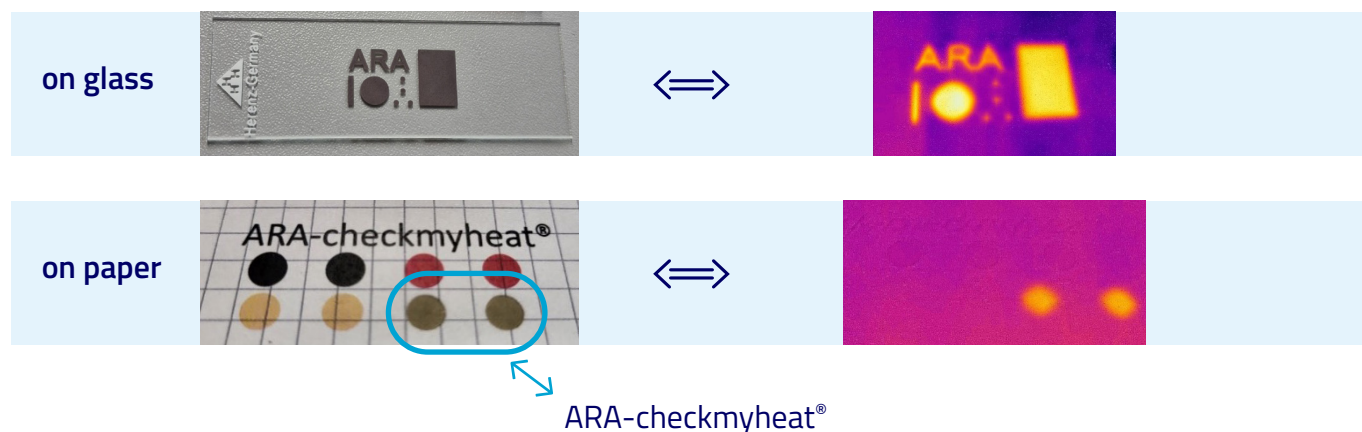
LASER-INDUCED FORWARD TRANSFER (“LIFT”) OF THIN PVD FILMS

Example 1: ARA-checkmyheat®

This additive laser marking always stays warm (which is physically impossible !) and is therefore always visible in infrared. Can be customized to virtually any product surface.

Photo of a PVD-marked sample

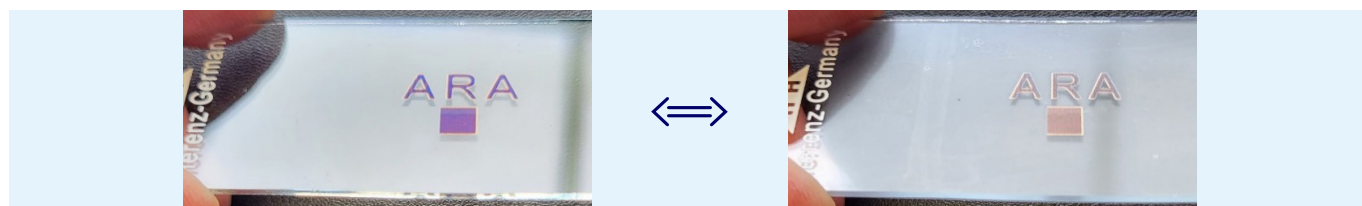
Infrared picture of this sample



Example 2: humidity-dependent color change

Additive laser marking on glass

Additive laser marking after breathing



Example 3: ARA-Authentic “traceless”

Additive SiO₂ laser marking on glass

Additive SiO₂ laser marking after breathing

