HIGH PERFORMANCE POLYMERS

RadiciGroup Stable Orange Colour Solutions for high-voltage xEV components

Automotive electrification has introduced unprecedented challenges for new development, such as:

- Increased energy density of Li-ion batteries requiring higher fire resistance (UL 94 V0).
- Miniaturization of components requiring a high Comparative Tracking Index (CTI) (>500 V).
- High dielectric properties over a broad range of temperatures (-40°C to +150°C).
- Long-term reliability during the longer xEV lifetime (>10,000 h vs 3,000 h for ICE).
- Easy recognition of high-voltage components in any conditions of use (stable orange colour after exposure for 1008 h at 130 - 140°C with legible laser marking).

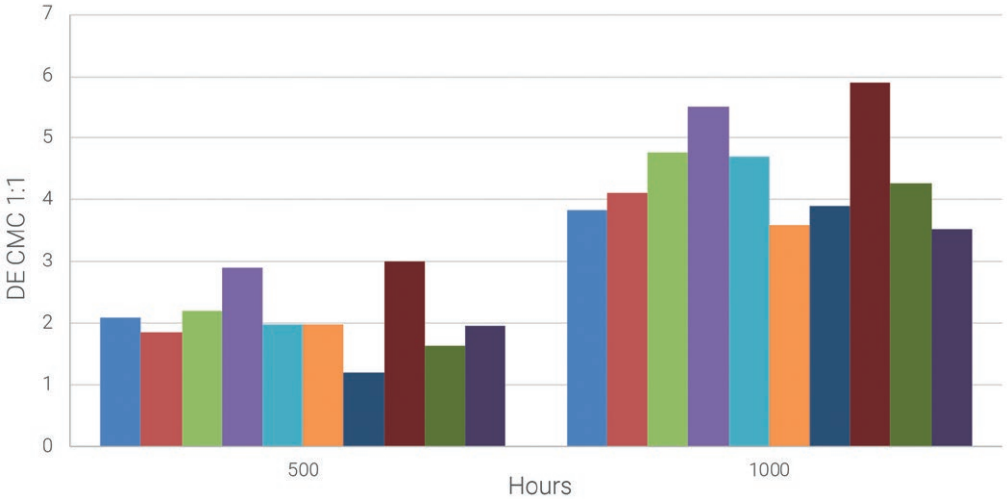
RadiciGroup High Performance Polymers is able to fulfil all above requirements, thanks to the **development of new RAL 2003** orange stable colour. Solutions are available in both **Radilon®** (PA6, PA66 and PA610), **Raditer®** (PBT) and **Radiflam®** (PA6, PA66, PBT and PPA). These materials are laser markable, electrically neutral and show excellent colour stability after exposure for 1000 hours at 130°C and 250 hours at 150°C without a reduction in critical safety characteristics, such as UL 94 V0, CTI and insulation properties.

Example of Laser Marking - Orange HT for E-Mobility

GRADE	Laser speed	Laser frequency	Power (with 30 W laser)	Laser marking quality
RADILON® S RV300K 5138 OR	400 mm/s	30 kHz	90%	

Example of DMC marking performance with 1064 nm IR laser.

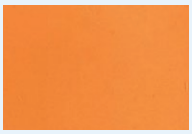
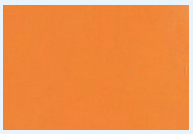
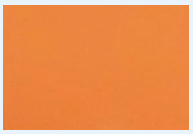
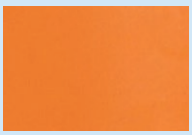
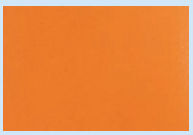
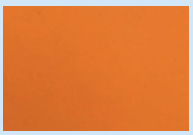
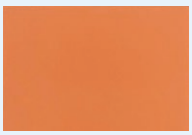
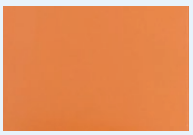
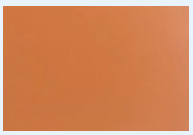
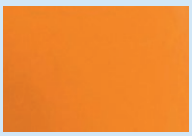
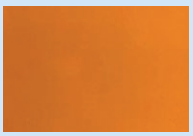
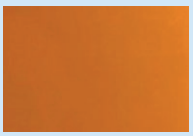
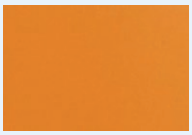
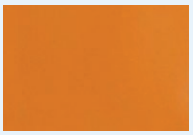
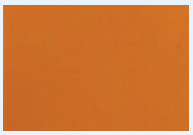
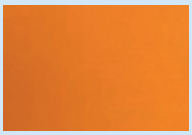
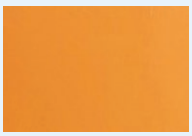
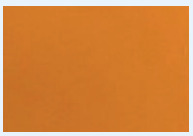
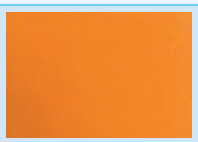
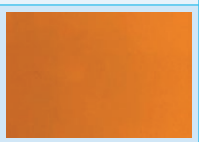
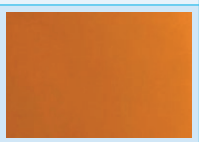
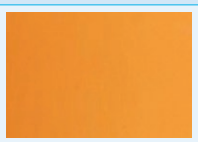
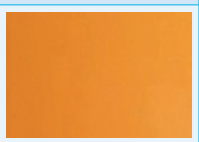
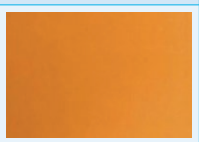
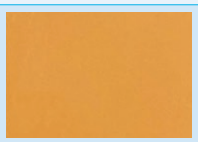
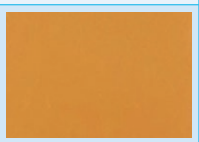
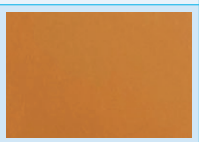
Colour Variation after 1000h @130°C (DE CMC)



No critical colour variation after heat aging @130°C (even @150°C for selected grades). The RAL2003 Orange colour remain stable for all our compounds.

- RDT B RV300K 5138 OR
- RDT B ERV300TKB 5138 OR
- RDF B RV300HF 5138 OR (LX22390)
- RAD.D 40K 5138 OR (LX23016)
- RAD.S RV300K 5138 OR
- RAD.A RV300K 5138 OR
- RDF.A FR 5138 OR
- RDF.S RV300HFL 5138 OR
- RAD.S RV250FR2 5138 OR
- RDF. AESTUS T2 RV300HF 5138 OR (LX23383/B)

RadiciGroup Orange Grades' colour stability after exposure for 1000 hours @130°C

GRADE	Classification	0 h Reference	After 500 h @130°C	After 1000 h @130°C	UL rating	CTI
RADITER® B RV300K 5138 OR	PBT GF30-T				HB	550V
RADITER® B ERV300TKB 5138 OR	PBT GF30-T HR				HB	550V
RADIFLAM® B RV300HF 5138 OR (LX22390)	PBT GF30 FR HF				V0@0.8mm	550V
RADILON® D 40K 5138 OR (LX23016)	PA610-T Extrusion				V2@0.8mm	600V
RADILON® S RV300K 5138 OR	PA6 GF30-T				HB	500V
RADILON® A RV300K 5138 OR	PA66 GF30-T				HB	600V
RADIFLAM® A FR 5138 OR	PA66 FR unfilled				V0@0.8mm	600V
RADIFLAM® S RV300HFL 5138 OR	PA6 GF30 FR HF				V0@0.8mm	600V
RADILON® S RV250FR2 5138 OR	PA6 GF25 FR HF				V2@0.8mm	550V
RADIFLAM® AESTUS T2 RV300HF 5138 OR (LX23383/B)	PPA GF30 FR HF				V0@0.8mm	600V

Tailor-made grades may be developed upon request.

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