Application Guide: LaserMark-E

Laser Response Modifier for Ceramic-Filled and Electronic Polymer Systems

1. Positioning Statement

LaserMark-E is a laser-response modifier designed for polymer systems containing ceramic, mineral, or electronic-functional phases.
It is used to stabilize and enhance laser interaction in applications where standard laser marking additives show inconsistent behavior.

2. What LaserMark-E Is — and Is Not

LaserMark-E IS:

- An inorganic laser-response modifier
- Designed for hybrid polymer systems
- Used as a supporting additive to improve marking consistency

LaserMark-E IS NOT:

- A primary laser marking additive
- A standalone contrast generator
- A decorative or color-specific marking solution

3. Typical Problems It Solves

LaserMark-E is selected when customers encounter:

- Inconsistent laser marking on ceramic-filled or mineral-filled polymers
- Poor mark definition due to heterogeneous material phases
- Unstable laser interaction in electronic or functional plastic components
- Difficulty maintaining contrast across batch or process variations

4. How It Works (Mechanism Level Only)

LaserMark-E influences local laser–material interaction within hybrid systems, helping to regulate energy coupling and surface modification behavior.

By acting as a laser-response stabilizer, it supports more consistent and controllable marking outcomes in complex material systems.

(Mechanism intentionally described at a functional level; no formulation details disclosed.)

www.greatkela.com
kela_overseas@greatkela.com
TEL:86 731-8224 6688
FAX:86 731-8521 5868
Adddress: Room531,Tower C,
Hong Jing Ming Plaza, ShaoShan
N Road 243, ChangSha City, China.

5. Suitable Application Window

Material Systems

- Ceramic-filled polymers
- Mineral-filled polymers
- Polymer systems for electronic or functional components

Base Color

- Neutral or functional colors
- Non-aesthetic industrial components

Laser Types

- Fiber laser
- Nd:YAG laser

Processing

- Standard compounding
- Masterbatch incorporation
- Co-additive use with primary laser marking systems

6. Typical Use Level

- Used at low levels as a modifier
- Exact dosage depends on:
- filler type and loading
- polymer matrix
- laser parameters

Final optimization should be performed by the user.

7. Performance Benefits

- Improved marking consistency in hybrid material systems
- Enhanced stability of laser response
- Reduced sensitivity to material heterogeneity
- Supports reliable marking in electronically functional parts

8. When NOT to Use LaserMark-E

LaserMark-E is not recommended when:

- A standalone laser marking solution is required
- Simple, unfilled polymers are being marked successfully with standard additives
- Decorative or colored marking is the primary goal
- Lowest-cost marking solution is the only criterion

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9. Typical Use as Part of a System

LaserMark-E is commonly used:

- As a co-additive alongside primary laser marking additives
- To support marking consistency in complex formulations
- In applications where laser marking reliability is more critical than appearance

10. Technical Support

LaserMark-E is supplied with application guidance.
System-level optimization can be supported under NDA when required.

11. Summary

LaserMark-E is a laser-response modifier for ceramic-filled, mineral-filled, and electronic polymer systems.
It is selected to stabilize and improve laser marking behavior in applications where standard solutions are insufficient.

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