Application Guide: LaserMark-P

High-Absorption Laser Marking for Low-Power and Demanding Conditions

1. Positioning Statement

LaserMark-P is a high-absorption laser-responsive additive designed for reliable laser marking under demanding conditions, including low laser power, high marking speed, and thick or filled polymer parts.

It is selected when standard laser marking additives do not deliver sufficient contrast or consistency.

2. What LaserMark-P Is — and Is Not

LaserMark-P IS:

- An inorganic, high-efficiency laser absorber
- A solution for difficult-to-mark polymer systems
- Designed for industrial marking reliability, not aesthetics

LaserMark-P IS NOT:

- A decorative or color-specific marking additive
- A solution optimized for white or aesthetic surfaces
- A substitute for colored laser marking systems

3. Typical Problems It Solves

LaserMark-P is used when customers experience:

- Insufficient marking contrast at low laser power
- Inconsistent marks at high marking speed
- Poor readability on:
- thick parts
- mineral-filled or reinforced polymers
- Laser marking systems with limited process window

4. How It Works (Mechanism Level Only)

LaserMark-P provides strong and broad laser energy absorption, enabling effective surface modification even when laser energy input is limited.

This controlled absorption allows consistent mark formation across a wider range of processing and laser conditions.

(Mechanism intentionally described at functional level only.)

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5. Suitable Application Window

Polymers

- PP
- ABS
- PC
- PA
- Filled or reinforced polymer systems

Base Color

- Dark colors
- Mid-tone colors
- Industrial parts where contrast, not appearance, is critical

Laser Types

- Fiber laser
- Nd:YAG laser

Processing

- Standard compounding
- Masterbatch incorporation

6. Typical Use Level

- Below 1 wt% in most systems
- Exact level depends on:
- polymer type
- filler content
- part thickness
- laser speed and power

Final optimization should be performed by the user.

7. Performance Benefits

- Effective marking under low-energy conditions
- Improved consistency at high marking speeds
- Reliable marking on thick or filled parts
- Wider processing and laser operating window

8. When NOT to Use LaserMark-P

LaserMark-P is not recommended when:

- Colored or green laser marks are required
- Aesthetic surface appearance is critical
- Standard laser marking additives already provide sufficient performance
- Regulatory-driven Sb-free solutions are specifically required

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9. Comparison with Common Alternatives

Solution	Limitation
Carbon black	Conductivity, uncontrolled heat spread
Standard absorbers	Insufficient response at low power
Organic pigments	Thermal degradation

LaserMark-P addresses these limitations in demanding industrial marking scenarios.

10. Technical Support

LaserMark-P is supplied with application guidance.
Formulation-specific optimization can be supported under NDA when required.

11. Summary

LaserMark-P is a high-performance laser marking solution for challenging processing conditions, including low-power lasers, high-speed marking, and thick or filled polymer parts.

It is selected for robustness and reliability, not decorative marking.

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