

Laser Diode Upgrade Version RoHS



Overview

Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive.

Key Takeaways

Upgraded laser diodes can be RoHS-compliant, but some may contain lead under specific EU RoHS exemptions, particularly in glass or ceramic components. RoHS Compliance Overview

The RoHS Directive restricts the use of hazardous substances, including lead, in electrical and electronic equipment sold in the EU, limiting lead to 0.1% by weight in homogeneous materials. However, certain exemptions allow lead use in cases where substitutes are not feasible, such as in high-melting-point solders, glass encapsulation, or ceramic components commonly found in laser diodes. These exemptions are regularly reviewed and may expire unless renewed, with critical deadlines in 2026 for some categories.

Lead Exemptions in Laser Diodes

Laser diodes often fall under RoHS Annex III exemptions, specifically Exemption 7(C)-I, which permits lead in electrical and electronic components containing lead in glass or ceramic. This means that even upgraded versions of laser diodes may contain lead internally while still being considered RoHS-compliant. Manufacturers typically document these exemptions to ensure regulatory compliance.

Product Definitions and Environmental Standards

- Lead-Free Finish: Some laser diodes have lead-free solder externally but may contain lead internally in die bonding solder or glass passivation. Lead in these materials is exempt from RoHS .
- Totally Lead-Free: Products with no purposefully added lead internally or externally, with impurities below reporting thresholds .
- Green Products: RoHS-compliant products with restricted levels of bromine, chlorine, and antimony compounds .

Compliance Considerations for Manufacturers

Manufacturers upgrading laser diodes must:

- Track RoHS exemptions and their expiration dates.
- Maintain accurate supplier data and material declarations.
- Adjust soldering profiles for lead-free finishes if integrating with Pb-containing solders .
- Ensure documentation for delegated directive updates and potential narrowing of exemptions in 2026 .

Practical Implications

- Upgraded laser diodes can be used in EU markets if they comply with RoHS or documented exemptions.
- Lead-containing components under exemptions are legally permissible but must be clearly documented.
- Companies should monitor renewal deadlines and technical feasibility of lead-free alternatives to maintain compliance. In summary, RoHS compliance for upgraded laser diodes is achievable, but internal lead may still be present under specific exemptions, and manufacturers must carefully manage documentation, exemptions, and soldering processes to meet EU regulatory requirements .

Article Content

Compliance of the RoHS directive

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RoHS Laser Light 2026 Compliance Guide

This report provides a comprehensive analysis of the RoHS (Restriction of Hazardous Substances) compliance

RoHS Annex 3 Lead Exemptions 2025-2027

Detailed overview of the changes and new additions to the RoHS Annex III lead exemptions for the period of 2025-2027, based on

Diodes Incorporated

Lead is exempted by RoHS with exemptions 7a-I (lead in high temperature melting point solder) and 7c-V (lead in glass or ceramic).

New Products | OSI Laser Diode Inc.

These LEDs are typically used in data or analog transmission systems where the launch power requirements are too great for an

Environmental Compliance

Diodes defines "Green" products as those which are RoHS compliant and contain

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

