



Glass vs. Single-Use Plastic

Where Each Technology Fits in Modern Cell Culture Workflows

Single-use plastic systems have become standard across many laboratory workflows due to convenience and reduced preparation time.

However, as labs evaluate long-term cost, process consistency, and waste impact, many are reassessing where glass systems may provide a more effective solution.

WHERE GLASS ADDS VALUE

Designed for Consistency Over Time

- Stable material with very low extractables and leachables
- Chemically inert across a wide range of solvents, acids, and bases
- Maintains clarity and performance without degradation

Built for Reuse, Not Replacement

- Can be cleaned, sterilized, and reused repeatedly
- Reduces reliance on disposable consumables
- Long operational lifespan - often measured in years or decades

Supports Process Control

- Compatible with autoclave, dry heat, and flame sterilization
- Handles high temperatures and extreme conditions (-196°C)
- Single-material contact surface simplifies validation

Stable Supply, Predictable Cost

- Not dependent on oil-based raw materials
- Less exposure to supply chain volatility
- Lower total cost over time despite higher upfront investment

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WHERE SINGLE-USE PLASTICS FIT

Designed for Convenience

- Eliminates cleaning and sterilization steps
- Pre-sterilized and ready to use
- Lower upfront cost per use

Tradeoffs to Consider

- Limited reuse: most systems are disposed of after one use
- Recycling challenges due to material complexity and contamination
- Potential variability across materials and assemblies
- Ongoing consumable cost over time

MAKING THE RIGHT CHOICE

It's Not Glass or Plastic. It's Where Each Makes Sense.

Many labs are adopting hybrid approaches, using:

- Glass systems for core, repeatable processes
- Single-use systems where flexibility or sterility convenience is critical

KEY TAKEAWAY

Glass systems offer a long-term advantage where consistency, durability, and process control matter most.

SCAN ME Scan the QR code to view the full Technical Note: Glass Vs. Single-Use Plastics: Advantages and Disadvantages of Each Technology.



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