

Used vs. Unused U-2D Inserts Visualization in Multi-Project - Tech Information

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Effective sample tracking is critical when the U-2D™ Micro-Sample Management System is used across multiple projects or when small batches are processed intermittently. The guidance below summarizes robust, low-effort methods to distinguish used from unused glass inserts while protecting sample integrity and avoiding cross-contamination.

Practical Methods to Flag Insert Status

1. Annotate the silicone mat / film

Use a compatible laboratory marker to label the silicone sealing mat or film directly above wells whose inserts have been used (e.g., “RUN,” checkmark, date/time, analyst initials). This provides an immediate, noninvasive visual cue without touching the glass.

2. Segment the mat / film to shield unused wells

When only a subset of inserts will be used in the current run, cut the mat/film to cover only the unused wells. This tactic both protects unused inserts from environmental exposure and serves as a physical indicator of which wells remain available.

3. Selective removal of used / unused inserts

If your workflow requires moving inserts into autosampler vials or archiving unused positions, remove the relevant inserts and store them under clean conditions (e.g., covered trays or clean containers) until the next operation. Handle with clean gloves and tools to avoid introducing particulates.

Contamination control: Regardless of the approach, careful handling and storage of inserts is essential to prevent contamination prior to use or transfer.

Operational Tips for Technical Teams

- Align with your labeling SOP: If your site uses controlled labels or electronic plate maps, mirror the mat annotations in your LIMS/ELN to keep vial positions synchronized with digital records. (Rationale informed by the recommended annotation/segmentation practices.)
- Preserve mat integrity: When cutting mats/films, maintain clean, straight edges and avoid generating particulates; re-wipe edges with a suitable solvent if lab policy allows, then air-dry before re-capping wells. (Derived from the film segmentation guidance.)
- Stage inserts thoughtfully: If you selectively remove inserts for later use, dedicate covered, clean containers and label them with plate ID, row/column, and status to preserve traceability when re-racking. (Based on the selective removal/storage advice.)
- Combine with vision/barcoding: For high-throughput labs, add barcode or vision checks per rack to confirm well-by-well status against mat markings—especially valuable when multiple projects share the same rack over time. (Process enhancement aligned to the article’s core practices.)

Why These Methods Work

- Noncontact status marking keeps glass pristine until use (annotation on mats/films, not inserts).
- Physical segmentation of the mat/film acts as a barrier and a visual control to segregate unused wells.
- Selective insert handling supports flexible campaigns (e.g., partial plates), while emphasizing clean storage to avoid pre-use contamination.

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