



White Paper

Laboratory Bench Electrical Box Meets Proposed Spill Standards

The laboratory work surface is a unique environment. The work surface combines the presence of liquids and the need for ready sources of power for equipment. This combination presents an increased risk of shock or short circuit due to moisture entering receptacles, or the outlet boxes that house them. Legrand recognized that spills are probable in the lab, and wanted independent verification that a box designed specifically for this environment would perform acceptably when subjected to spills.

At present, outlet boxes that are sold without installed receptacles are covered by UL 514A. However, some outlets come in prewired assemblies which UL considers multi-outlet assemblies. Products that are considered multi-outlet assemblies are covered by UL 5. UL5 requires significantly more testing to verify that the receptacle and the outlet box meet all required safety standards. However, the common practice is for the outlet box and the receptacles to be sold separately for on-site assembly in a lab environment. This means the vast majority of these installations are not required to meet the more rigorous standard. So the question became, how do we verify the high safety standards of UL5, while keeping the flexibility of installation as it is today?

The answer is a pending new standard, UL 111. UL 111 applies higher standards than UL 514A and contains a variety of new requirements, including a spill test for table-mounted units. Significantly, UL 111 will apply to outlet boxes and specific receptacles on a manufacturer-by-manufacturer basis. Approved combinations of a specific outlet box and a receptacle will provide the same assurance of safety and reliability that is required in a UL 5 approved assembly.

The Wiremold Lab Bench Table Box has been engineered specifically to meet UL 111 standards. Its aluminum housing and side plates and steel base and divider are designed and manufactured to tight tolerances to prevent liquid from entering. In addition, the receptacles are mounted slightly above center so there is less chance for liquid to impact the receptacle.

One of the critical factors in meeting UL 111 is the interaction of the box and receptacles. Not all receptacles, even those with identical ratings, are the same. There may be significant design variations from manufacturer to manufacturer. This means each combination of outlet box and receptacle has to be individually tested.

Legrand sought to gain UL 111 listing for the Wiremold Lab Bench Table Box in combination with a full range of Pass & Seymour[®] receptacles. For the spill test, receptacles were installed in the box. A container with 8 grams of salt in 1 liter of water was placed on a 45-degree angle surface facing the box and the container was tipped over. The test results showed that there was no risk of fire or electrical shock as a result of the spill. When used with Pass & Seymour receptacles, the combination of the Lab Bench Table Box and receptacles is listed as a multi-outlet assembly and meets the requirements of UL 111.

It is important to note that testing was performed using Pass & Seymour devices. Testing included 15A and 20A GFCI, hospital grade, straight blade, isolated ground, and PlugTailTM receptacles. Further testing was completed for both 20A and 30A locking receptacles. Installations using devices from other manufacturers with the Wiremold[®] Lab Bench Table Box cannot be assumed to meet the proposed UL 111 standard.

In addition to the proposed UL 111 standard, the Lab Bench Table Box meets the Nationally Recognized Testing Laboratory (NRTL) listing for work surfaces, as well as UL 514A for metallic outlet boxes.

The Wiremold[®] Lab Bench Table Box is a fresh look at satisfying the needs of today's lab environment. The Lab Bench Table Box is a field configurable, multi-gang product that provides functionality and flexibility. It has been specifically tested for work surface use. The Lab Bench Table Box has an aesthetic form factor that gives additional wiring capacity over competing products. This additional capacity allows one outlet box to be able to hold back to back GFCIs. It also has a removable divider that enables power and communication, or audio/video in the same outlet box. The Wiremold Lab Bench Table Box is designed for either retrofit or new construction.

The Wiremold[®] Lab Bench Table Box was developed with input from both the specifying and regulatory communities, with the requirement to meet the proposed new standard UL111. The independent verification of its performance under spill conditions helps provide a safe work area and serves to future proof the lab bench electrical system. Specifiers, contractors and facility owners may be certain that that the assembly meets all current and future standards.

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