



Transparent pipetting survives harsh laboratory environments

New transparent pipette design relieves worker fatigue while improving safety and accuracy.

Employees often become bored and dissatisfied with their jobs when they have to repeat a particular task endlessly. Moreover, they might become so fatigued that they injure themselves doing it. Whether emotional or physical, these negative effects can reduce productive output and increase the chance for making errors. Although these problems can affect any business, they can be especially dangerous in life science laboratories where mistakes are hazardous, resources scarce, and applications often time-critical. However, repetition is unavoidable for many procedures such as pipetting in tissue culture laboratories, biomedical research facilities, and universities.

One way to alleviate the repetition and danger to human operators is to automate the pipetting process. Automated pipette equipment includes numerous critical metering and control components that make it safe, fast, and accurate. Because the electronic pump is the keystone component of the pipette, the material used to house and protect it is one of the device's most important product design considerations. The material should be highly transparent, durable, lightweight, and able to withstand the harsh laboratory environment.

We've all heard the old adage that "seeing is believing." Although this is not necessarily true in the life science industry where devices designed to deliver high accuracy typically cannot be made of transparent materials, being able to see what is inside certainly helps. This was one of the factors considered by Drummond Scientific for the housing of its automated Pipet-Aid, which ultimately required a clear material to provide a transparent view of the instrument's inner workings. Drummond Scientific has been supplying precision micro-liquid transfer devices to laboratories for almost 60 years, so it is familiar with such problems in designing and manufacturing laboratory devices. These issues led Drummond to select CYROLITE® GS-90 acrylic-based multipolymer compound



Drummond Scientific's latest innovation, the Pipet-Aid® Elite™ 400, is a liquid-handling device that repeatedly and rapidly dispenses programmed aliquots of aqueous solutions from serological pipettes in quantities of one to 50 milliliters. For more information, see www.drummondsci.com.

from Degussa/CYRO Industries for the device housing. Tough, sterilizable, and resistant to chemicals, this material maintains its clarity and survives long-term use of the Pipet-Aid in the laboratory.

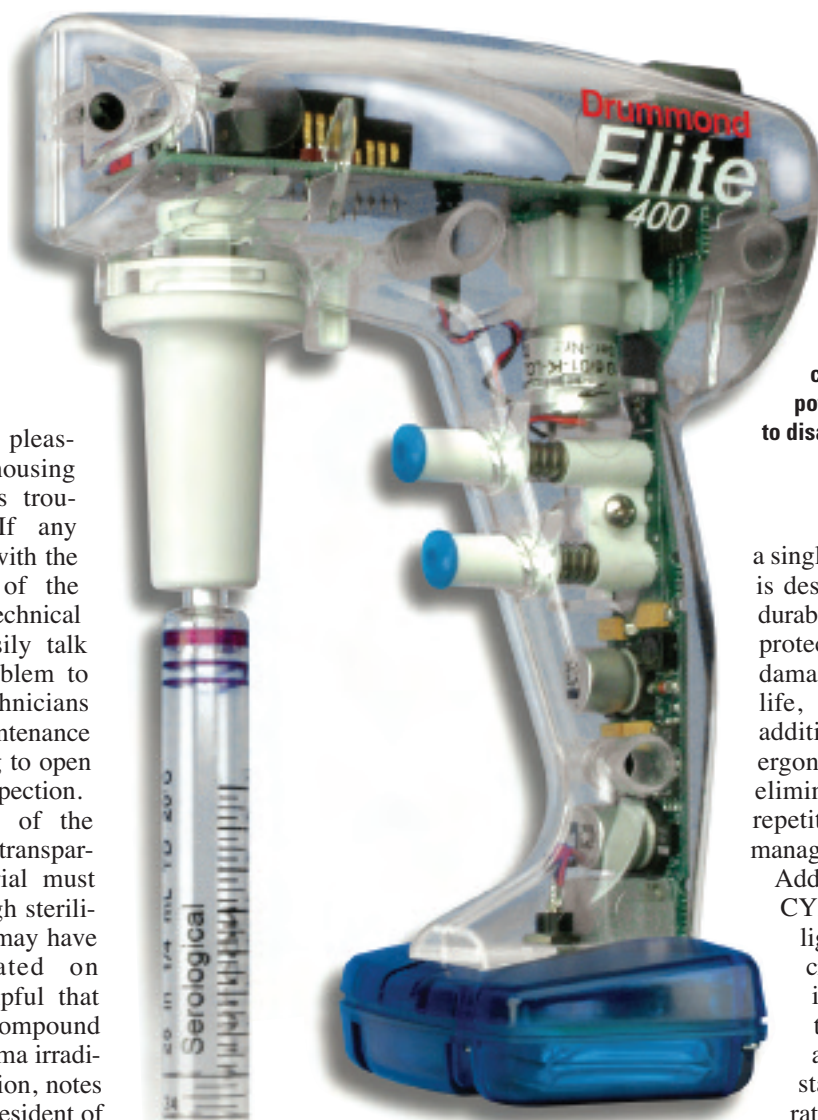
While aesthetically pleasing, the see-through housing also helps technicians troubleshoot problems. If any minor problems arise with the mechanical function of the device, Drummond's technical support team can easily talk users through the problem to reach a solution. Technicians can streamline the maintenance process without having to open the device for close inspection.

To take advantage of the aesthetic benefits of a transparent casing, the material must retain its clarity through sterilization. The Pipet-Aid may have to be decontaminated on occasion, so it is helpful that CYROLITE GS-90 compound can be exposed to gamma irradiation and gas sterilization, notes Charles Locke, Vice President of Sales and Marketing at Drummond Scientific.

The ability to withstand ultraviolet light is also necessary for the Pipet-Aid housing. In many facilities, including tissue culture laboratories, repetitive pipetting is carried out under biological safety hoods using UV light for sanitizing. However, not all plastics fare well under prolonged UV exposure; often, key properties are altered in some materials.

"Polycarbonate and other plastic resins were considered for the housing, but they turned out to be too brittle when exposed to UV light," recalls Locke. "We realized that after using them for a month or so, the polycarbonate would just shatter. On the other hand, CYROLITE GS-90 compound does not craze or become brittle over time."

Unlike serological pipettes, which are often disposed of after



CYRO Industries' CYROLITE GS-90 compound transparent acrylic multipolymer lets technicians observe internal components and troubleshoot potential problems with having to disassemble the device.

a single use, the Pipet-Aid Elite 400 is designed to last. The housing's durability is essential to sufficiently protect the internal motor from damage, expect it to have a long life, and still be portable. In addition, so as not to offset the ergonomic benefits achieved by eliminating excessive manual repetition, the device needs to be manageable and easy to lift.

Adding an impact-modifier made CYROLITE GS-90 compound lightweight and durable and increased its resistance to chemicals that would allow it to tolerate contact with the salty, acidic and other strong substances commonplace in laboratory environments.

Now relieved of the effects of repetitive motion by using the Pipet-Aid Elite 400, laboratory technicians can more rapidly perform tasks requiring tedious pipetting. With its durable protective housing, the device can be used throughout life-science facilities, regardless of the presence of toxins and other harmful substances. Moreover, laboratory managers can reallocate their time and resources to more critical processes for improved efficiency and productivity. **DW**

Information for this article was provided by CYRO Industries, Parsippany, New Jersey.

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