Have you ever applied 15 SPF sunscreen thinking it will provide enough protection, only to find yourself red and blistered the next day? Choosing the wrong sunscreen is like choosing the wrong accessory for your gas detector, only with more severe effects than sunburn.

About 15 years ago, it was fairly simple to choose the proper type of accessories a company needed for their gas detection instruments. Today, there are so many more options for your organization to choose from, and making the best decision can be overwhelming. This article groups the accessories into sections and explains the available options for each type of accessory.

**Sampling Accessories**

When it comes to sampling a confined space, there are several different accessories used for sampling. Here are a few of those accessories.

**Sampling Pumps**

For some instruments, multiple pumps are available. Picking the right one can greatly affect the user’s opinion of the instrument itself, as well as improve their safety.

**Internal Pump**

With an internal pump, the gas monitor and pump are connected, giving the employee the assumption that it’s all one instrument. This pump is beneficial because an employee cannot make the mistake of leaving behind the pump and incorrectly performing a confined space sampling. He/she can take the instrument and not have to worry about grabbing extra parts, depending on the type of work needing to be done. The downside of the internal pump configuration is that the instrument is typically slightly more bulky than a monitor without a pump.

**External Pump**

A gas monitor can also be used with an external pump. This is especially useful when the gas monitor is not always needed for confined space sampling. For example, when using the instrument for personal monitoring, instead of having a bulky gas monitor near their breathing area, the employee can wear a small gas monitor that is no bigger than the size of a cellphone. When sampling a confined space is required, he/she can simply grab the sample pump, slide the instrument into it, and test the space. This option gives the employee a choice on how they want to utilize the gas monitor, but also gives them more responsibility.

No matter the type of pump being used, using a pump is always better than the alternatives, i.e. lowering the gas monitor into a confined space with a rope or holding onto it while the employee sticks their arm into the space and tries to breathe fresh air outside of it.

**Probes**

Using a probe to sample a confined space is a very good idea because it allows the entrant to maintain distance between himself and the space. The telescoping probe allows the employee to expand the length as needed. The best telescoping probe I have seen is stainless steel and can expand to reach approximately six and a half feet. When not in use, it can be no longer than a foot. There is also the option of having a non-extendable probe. These probes are made of a specific plastic and range anywhere from one to six feet. They are equally as effective as the extendable probes, but due to their length they can be cumbersome to carry.

**Tubing**

Tubing is often overlooked within many companies’ gas detection programs. If you go to your local home improvement store and look at the different types of available tubing, you will see that the options are vast. Gas detection end users should understand that not all types of tubing are suitable with gas detection. I would recommend polyurethane-based tubing due to potential saturation of gases in other kinds of tubing. The tubing you choose should also depend on the length needed for the confined space sampling. The longer the length of tubing, the more gas absorbed. When polyurethane is used, absorption drops dramatically. For more exotic gases, it is best practice to use Teflon-lined sample tubing, as it has less saturation than that of the polyurethane tubing.

**Filters**

The employee also needs to know what type of substances could be present in the sampled space. With this knowledge, the appropriate filter(s) required for testing can be selected. Using the wrong filter could damage the instrument or, worse, fail to alarm when a hazardous atmosphere is present. There are two types of filters; dust filters, which only block dust, and dust-filter water stops. The dust-filter water stops are my favorite, because of what they do for the instrument. Ensuring there is a dust-filter water stop on the end of the tubing before testing a space can truly save the instrument as well as the tubing being used. The dust-filter water stop will automatically block the air going to the pump once water hits the surface of it. In most current pumps, there are pressure regulators that...
can tell when air is not reaching the pump. These pressure regulators will force the pump to stop running and sound an alarm, letting the employee know to get it out of the confined space and to replace the filter. Unfortunately there isn’t just one type of dust-filter water stop and one type of dust filter. Before testing a confined space, make sure the proper filter is attached.

**Batteries**
Typically, there are only two battery types available for gas detection instruments, each with its own benefit.

**Lithium-Ion**
Nickel-cadmium batteries were previously used in gas detection, but luckily we’ve stepped away from that and started using lithium-ion batteries. Most gas detection companies switched to this type of battery for its longevity and because lithium-ion batteries are rechargeable. A typical battery life for gas detection instruments using lithium-ion can range anywhere from 12 to 36 hours. This is a big difference from the previous average of eight hours with nickel-cadmium. I’ve been asked many times, “Does lithium-ion hold memory?” Nickel-cadmium will hold memory as to how long it’s been used. For example, if someone uses the instrument for three hours habitually and then someone else tries to use the instrument for eight hours, it may not run for a full eight hours because the battery held memory. Lithium-ion will not hold memory. If someone needs to use the instrument for an hour one day and 16 hours the next, they can with lithium-ion. Lithium-ion typically lasts, at its longest, for three years. This doesn’t mean that after three years the instrument will not work anymore. Instead it means that after three years of usage, the battery may only last eight hours, rather than its original length of 12 hours.

**Alkaline**
This type of battery typically lasts eight hours in most instruments. The benefit of using alkaline batteries for gas detection is that the amount of hours people usually work is equal to the amount of hours an instrument’s alkaline battery will last. If an employee is working for 12 hours and his battery dies, they can replace the old battery with an alkaline battery. That way the employee doesn’t have to leave the environment to grab another instrument.

**Calibration Stations**
I prefer using a calibration station over the charging station because some of the guesswork is taken out of calibrations and function (bump) testing. With this option, before the employee does the job, he/she will insert the instrument into a calibration station and has the option to press either “bump” or “calibrate.” The calibration station will then automatically perform that function for them. It will also store and/or print the results for the employee. The charging station does have a limited amount of saved records due to limited storage space.

**Docking Stations**
Docking stations are the latest and greatest option when it comes to gas detection monitoring. Docking stations now automate when the calibration and function (bump) testing will occur. The employee has less responsibility when performing those specific functions. The worker only has to insert the instrument into the docking station and the needed task will be performed. The worker doesn’t need to know what the gas monitor manufacturer recommendations are or how to do them. The company simply needs to ensure the employees are trained on how to insert the instrument and from there, the docking station will do all the work. Some docking stations have even gone as far as having attached software. This software will download and store every calibration, bump test, data logging record, and alarm the instrument has ever recorded. The company can pull up any needed information from any instrument within their fleet.

Again, choosing accessories for your organization’s gas detector fleet can be overwhelming. By locating the possible hazards within your company and keeping the employee’s health and safety in mind, you should never go wrong in your decision for the best possible way to test the area. With plenty of resources and people with years of experience, it’s better to ask the question than to ignore it and have a potential safety incident.

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