

Avery Dennison Debuts Extra-Durable High-Memory EPC Gen 2 Tag

An oil refinery is using the company's new AD-902 tag to help it track personnel and assets during emergencies.

By Beth Bacheldor

Nov. 14, 2008—Avery Dennison's RFID division this week added to its RFID tag portfolio the AD-902, a durable tag compliant with the EPC Class 1 Gen 2 and ISO-18000-6C standards, and optimized for on-metal performance. The tag features 240 bits of EPC memory and 512 bits of user memory in a rugged, impact-resistant case made of polycarbonate—a step up from Avery Dennison's other durable EPC Class 1 Gen 2 tag with a case made of PVC, according to George Dyche, the company's RFID durable product manager. The impact-resistant case is designed to be impervious to dust and jets of water, earning it an International Protection (IP) rating of 65. What's more, the case is reusable and can be applied to substrates via bolt or rivet.

One company—an oil and gas refinery that has asked not to be identified—is implementing the AD-902 tag to track personnel and assets on site. Chicago-based consulting and systems integration firm Omicron Technologies worked with the refinery to develop the RFID system, which will help the company track personnel during emergencies, as well as keep tabs on such assets as high-end laptops and specialized tools.

Omicron's CEO, Lionel Rabb, says the AD-902 was the only standards-based, passive ultrahigh-frequency (UHF) tag able to meet the company's needs and performance requirements. Initially, the refinery considered employing active tags to track personnel, and was in the process of getting the active tags certified as nonincendive devices (signifying they have been sealed in such a way that flammable vapors cannot get inside them, which could cause a fire or some other reaction). Because a passive tag's power output is nominal, if not nonexistent, Rabb says, it need not be rated or certified as nonincendive.

Equally important, Rabb adds, the AD-902 met the refinery's performance requirements. "We tested several tags on people," he says, "and particularly on people in motion, and the AD-902 was the only one that actually worked [as needed] and had high performance and also already had a rugged design. The antenna on this tag seems to be very good for distance, and even with people running." He adds that read ranges of 5 to 15 feet were achieved during tests.

Another factor was the additional memory storage, Rabb says, because the refinery wants to be able to store not only a unique ID number on the tag, but also a person's name or an additional asset identifier. That's because the refinery lacks a wireless network that would allow the handheld readers to access a back-end database in order to download information corresponding to tag ID numbers as they are captured. The refinery's RFID system includes handheld interrogators from Intermec that have been certified as nonincendive. The readers communicate via a cellular network to transfer tag data to secure Web servers.

The refinery's RFID implementation—which went into operation in early October—is expected to include 400

to 500 tags, the majority of which will be used on personnel. The tags will be embedded in specialized clothing employees wear when responding to emergencies. As first responders go out to an emergency, a supervisor holding an interrogator will capture tag data as the responders pass by. Not only will a responder's movement into and out of an emergency site be captured, but the amount of time that individual works at that site will also be logged. Such data can help ensure that responders are not exposed to dangerous conditions for too long. The information can also be uploaded into the refinery's payroll system.

According to Rabb, the RFID system will get plenty of use, and is replacing a process that included pen and paper and manual headcounts. "Refineries and chemical plants probably have small controlled incidents once a week," he states. "That's anything from popped-off valves, exploding steam releases, small fires, to pipeline bursts. The RFID system is scaled for small incidents and large incidents."

RELATED_ARTICLES The refinery is also in the process of tagging assets in order to keep track of them during an emergency response, as well as during training exercises. These assets are expensive, Rabb explains, and by tagging them, the refinery will be able to account for these items before and after an emergency response, to ensure that no equipment was inadvertently left somewhere or misplaced.

The tag's performance boost, says Avery-Dennison's Dyche, comes in part from a metal reflector on its back side. "One issue with passive tags today is if they get too close to the human body or skin, performance drops off," he notes. "The metal reflector acts as a shield between the body and the tag. Also, because the tag is encapsulated, the layers of clothing don't come into contact with the tag itself. These two features are enabling this performance."

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