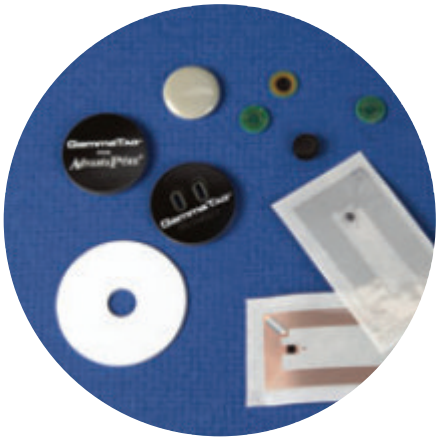
# Gamma Tag



The next generation of RFID is here – GammaTag RFID tags from Verigenics. They're the first radio frequency identification tags that handle gamma radiation with no loss of data. GammaTag provides reliable electronic data storage of single-use medical devices, bioprocess components and other parts from inception to disposal. GammaTag is available exclusively from Verigenics, a division of NewAge® Industries.

## Key Features

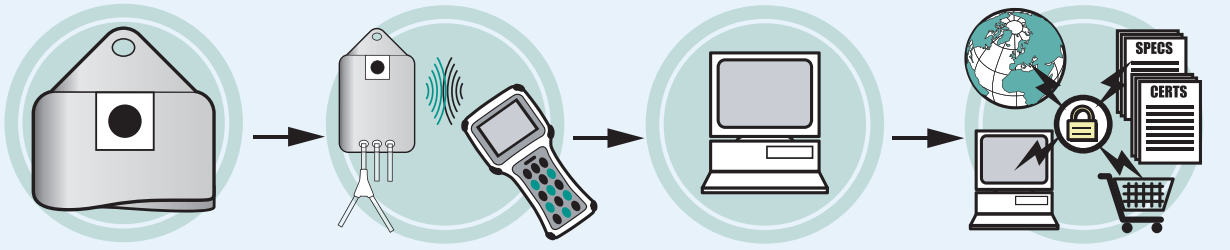
- Uses read/write RFID technology to identify critical process components in medical device, pharmaceutical, bioprocess/biomedical, food, and beverage industries
- Record and access the current status of process components on the spot, or use simply for identification (part number, lot number, gamma sterilization date, etc.)
- All critical packaging and labeling documentation resides on the component throughout its useful life
- Attaches to single use medical devices, sample and production bags, tanks, filters, manifolds, tubing and hose, storage containers, single-use systems, boxes or pallets undergoing gamma radiation sterilization, and dosimeters
- Allows gamma radiation sterilization of a complete single use system for the cleanest possible products
- Also withstands CIP sterilization processes
- GammaTag's read/write ability makes it unique – data may be written directly on the tag, unlike read-only bar code labels
- Provides reliable identification without the potential hazards of leachables found in label adhesives and permanent markers
- Will not fall off during cold storage like labels can
- Unlike bar code labels, GammaTag does not require a clear sight line for reading or writing
- Electronically links to notes, cleaning schedules, files, certifications, photos and illustrations, installation instructions, warning notices, disposal procedures, and other instructions
- Eliminates the burden and bulk of paper records and log books
- RoHS compliant
- U.S. Patent 8,519,846
- Field testing recommended for each application

## Specifications

| | |
|---|---|
| Dimensions: | 22mm in diameter; 2mm thick |
| Read/Write Range: | up to 50mm |
| Power Type: | passive; energized by RFID reader/writer |
| Gamma Radiation: | up to 45 kGy |
| Chipset: | Fujitsu MB89R118 |
| Memory Capacity: | 2048 bytes |
| User Memory Area: | 2000 bytes |
| Operating Frequency: | 13.56MHz ± 7kHz |
| Modulation Type: | 10%ASK |
| Operating Temperature: | -20°C to 85°C |
| Storage Temperature: | -40°C to 85°C |
| Data Retention Period: | 10 years at 55°C |
| Data Endurance: | 1010 cycles |
| Read Speed: | 1525 ms (2048 bytes) |
| Write Speed: | 1413 ms (2000 bytes) |
| Other: | 8 bytes/block configuration ISO/IEC 15693 commands full support Reading up to 256 blocks using custom commands |

**P·E·T** Process Equipment Tracking®

PROCESS EQUIPMENT IDENTIFICATION & LIFECYCLE ANALYSIS SYSTEM




### RFID Attachment Methods

Various attachment methods are available for different types of process components.

### Portable Handheld Reader/Writer

The handheld reader/writer identifies each device by its serial number.

### Lifecycle Analysis Tool

Data is transferred to a local computer to track equipment, maintain events, and store information.

### Secure Internet Ordering

In the case of AdvantaPure sanitary hose products, a secure web site eases replacement part ordering.

## Hose Track®

Hose Track offers a new degree of safety and reduced risk for the pharmaceutical processing industry, as well as other high purity applications in the food and beverage, cosmetic, chemical, and biomedical sectors. Using RFID (radio frequency identification) technology, all process equipment involved with a particular batch of product is monitored from start to finish. Briefly stated, Hose Track tracks who did what to each batch and when. It's a logical approach to tracking all critical process components.


- Identifies individual process equipment devices such as hoses, pumps, bio-bags, diaphragm valves, filters, and UV lamps using RFID tags
- Tracks key wear-related events such as cleaning cycles/dates and batches of material processed or other user-defined events
- Ensures timely maintenance and replacement before parts begin to fail, risk product integrity, and waste time and labor
- Provides an audit trail to assist in validation processes; helps accelerate data collection procedures and lower costs
- Reduces errors on the production floor
- Consolidates documents by electronically linking to notes, cleaning schedules, files, certifications, photos and illustrations, installation instructions, warning notices, and other protocols
- Safe for use with CIP, SIP, and autoclave processes
- Various tags address applications involving high temperatures, gamma irradiation, and mounting to metal
- Gamma-radiation-resistant RFID tag– GammaTag® – now available
- Different tag sizes and shapes available
- Field installation methods available to immediately start tracking existing equipment
- U.S. Patents 7,195,149; 7,328,837 and 8,519,846
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## MINIMIZES RISK

- Tags are encoded with serial numbers and other information and are externally attached to each piece of process equipment – no contact with material flow
- An administrative level access, known as Kiosk mode, prevents changes to the system – restricts usage to help enforce 21 CFR Part 11 validation
- Identifies individual process equipment parts such as hoses, pumps, bio-bags, diaphragm valves, filters, and UV lamps using RFID tags
- A fast, efficient, and precise identification system for critical process equipment
- Eliminates dependence on manual log book record keeping, its inefficiencies and inaccuracies, and the books' contribution as a contamination source

## REDUCES COSTS

- Accesses and records the current status of any tagged component on the spot
- Reduces errors on the production floor
- Limits failures and helps calculate equipment life expectancy using actual data
- Eliminates the inefficient calendar method of swapping out used parts – reduces wasted production life and underutilized equipment
- Field installation methods available to immediately start tracking existing process equipment
- Applicable to predictive maintenance systems (PdM)

## CONSOLIDATES DOCUMENTS

- Eliminates inefficient paper labels and hang tags
- Reduces dependency on paper records and their inherent problems, such as transposed numbers, incorrect dates, handwriting legibility, misread data, and misfiled documents
- Electronically links to notes, cleaning and maintenance schedules, files, certifications,
- photos and illustrations, installation instructions, warning notices, and other protocols
- Allows recording and storage of all critical information
- Links to a database that contains the complete biographical history of parts
  Allows information access from any networked computer running the Hose Track program

## PROVIDES AN FDA AUDIT TRAIL

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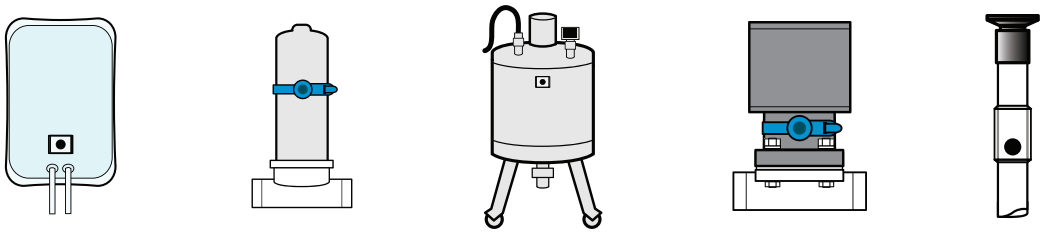
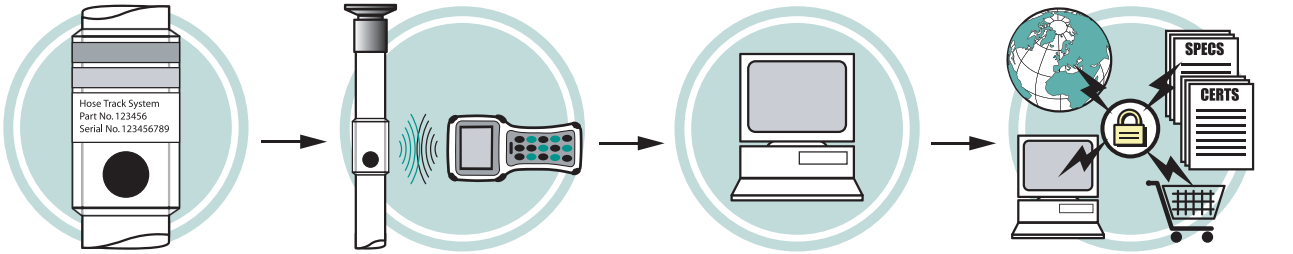
## EASY TO USE

- Unlike bar code labels, tags do not require a clear sight line for reading/writing
- Safe for use with CIP, SIP, and autoclave processes
- Integrates with existing workflows
- Custom engineered to best meet individual needs
- Select the tag attachment method best suited for each particular item – choose from a molded pouch, lamination, watchband style encasement, silicone fusible tape, or any customized design






### RF Identification Attachment Methods

The Hose Track RFID tag is attached to each device and encoded with a unique serial number. Several attachment methods are available, and many allow tag attachment to process equipment currently installed in facilities. Tag encoding can be customized to meet specific needs. Other quick visual identification methods can be incorporated with the RFID tag.

### Portable Handheld Reader/Writer

The handheld reader/writer identifies each device by its serial number for reference in a database. The reader/writer logs and tracks ongoing wear-related events such as the number of cleaning cycles and dates performed (CIP, SIP, autoclave), and the number of batches of material processed. Current data is linked to the RFID tag and may later be downloaded to a database for analysis.

### Lifecycle Analysis Tool

Specific data is transferred to a local computer using the Lifecycle Analysis Tool (software) to catalog process equipment, maintain wear-related events, and store application data associated to a particular location. Personnel can perform lifecycle analysis for individual locations for an accurate, application-specific replacement schedule prior to excessive degradation or failure.

### Secure Internet Ordering

In the case of tracking AdvantaPure high purity hose products, a secure web site allows access to hose origin information such as manufacture date, batch number, lot number, material specifications, material lot number, certificates of compliance, hose size and fitting specifications, and hose description. It also facilitates the ordering of replacement AdvantaPure hose assemblies.

## AdvantaLABEL®

Clear identification, cleanliness, the ability to sterilize, and permanence are part of the AdvantaLABEL tagging system. AdvantaLABEL eliminates the issues involved with metal, plastic, and paper tags. Because the label is sealed to the hose in clean silicone, it can be either steam sterilized (SIP) or chemically cleaned (CIP) many times without degradation of the label. AdvantaLABEL is O.D. mounted and never contacts material flow. It offers zero entrapment and is available with color stripes for coding purposes. Select from red, orange, yellow, green, blue, purple, brown, black, gray, and white.

- Platinum-cured silicone
- Permanently vulcanized directly to silicone hose cover – will not dislodge or degrade
- O.D. mounted – no contact with the material flow
- Zero entrapment
- Handles clean-in-place (CIP) or steam-in-place (SIP) processes
- Up to five lines of text and up to four stripes – select from 10 colors
- Field installation methods available

## Color Tracer Braid

The hose's colored braid is used among other braid material, which is white. Uses for identification can be as simple as red for a high temperature line and blue for cold. Colors may be used to relate to equipment or products within the hose, to signify direction of flow, and for other identification needs. As a custom option multiple braid colors may be used in a single hose. Color Braid Silicone Hose is available in I.D. sizes from 1/16" to 1". Temperature use encompasses a wide range of -100°F to 400°F, and the hose is sterilizable/autoclavable.

Note: Lead times and minimum order quantities may apply.

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## Color Four-Ply Silicone Hose

Four-ply, mandrel-wrapped silicone hose, with or without a stainless steel reinforcing wire, is an excellent choice for pressure applications that standard silicone hose cannot manage. It retains the performance characteristics for which silicone hose is known and remains a product that meets many industry standards. The option of color gives users a clear signal to help reduce the likelihood of errors during reattachment following sterilization.

Note: Lead times and minimum order quantities may apply.

- A solid color exterior makes identification quick and easy
- Inside of hose remains pure and white
- Use to identify direction of flow, particular departments, products, temperatures, capabilities, or work areas
- Custom made to best meet your requirements

## Laser-Etched Hose Collars


Use etched collars to communicate your most critical information. Part numbers, sizes, service dates, and usage recommendations are just a few examples.

Laser-etched collars present a sharp, legible, professional image. Include your company name, application specific information such as serial numbers or maintenance codes, and more. Your information will not rub off, smear, or degrade.

- Sharper and more legible than traditional acid-etched parts or handwritten labels
- Print logos, patterns, designs, and reverse type
- Use product serialization (incremental counting) for tracking purposes
- Identify hose maintenance and replacement dates, part numbers, logos, pressure and temperature ratings, contents, suction or discharge service – any data deemed critical

## Single Use Systems

Eliminate production stoppages for sterilization, reduce the risk of contamination, and increase efficiency by incorporating single use systems from AdvantaPure. Single use systems, or SUS, simplify cleaning validations—use once and discard. Each system is custom made using platinum-cured, Class VI silicone tubing and hose or AdvantaFlex® Class VI biopharmaceutical grade tubing for peristaltic pump applications. Add fittings, stoppers and container closures, filters, bottles, labels and tracking options, and other components. Single use systems are not intended for implantation or continuous steam applications.

- Custom manufactured and assembled from a variety of components
- Reduces end-user assembly labor expense and time
- Reduces cross contamination risks
- Saves energy and resource costs by eliminating cleaning and autoclaving
- Reduces production downtime by eliminating certain cleaning validation requirements
- Provides flexibility and speed in facility design—system redesigns are implemented faster than with hard piping
- Less costly process development and design compared to systems of hard piping
- Assembled and packaged in Class 7 (Class 10,000) ISO-certified clean rooms
- Available with validated sterility assurance of 10-6 log reduction per ISO 11137 method VDmax
- Documented lot traceable with identification on bags
- Documented quality control
- Experienced engineers available for technical assistance
- Tubing and molded connections provide a single, animal-derivedingredient-free material contact surface
- Optional RFID tags easily attach to assemblies for identification purposes—provide reliable electronic

## EASY TO USE

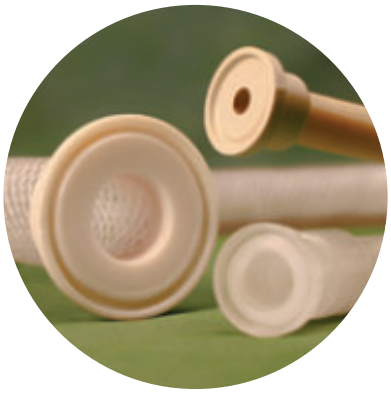
Single use molded manifolds provide a seamless transition between tubing and connections for a continuous, leak-proof flow. Molded connections include Y, T, cross, reducer, Tri-Clamp®, and mini Tri-Clamp styles. Made from platinum-cured silicone or AdvantaFlex, they allow for one material contact surface throughout the system.

Connections sizes differ depending on style.
Size range: .188” to 1” I.D.
(4.76mm to 25.40mm I.D.)
If molded manifolds aren’t right for your application, let AdvantaPure assemble your line sets.

### Barbed fittings

come in Y, T, elbow, and reducer styles. Materials include polypropylene, polyethylene, and PVDF.

Size range: 1/8” to 1” hose I.D.
(3.18mm to 25.40mm hose I.D.)



### Overmolded ends

are available in Tri-Clamp and mini Tri-Clamp styles in Hytrel® and polypropylene materials.

Size range: 1/8” to 1-3/16” hose I.D.
(3.18mm to 30.16mm hose I.D.)

### Aseptic connectors

reduce contamination risks and keep processing systems pure. Several easy-to-use styles are available.

## AdvantaLABEL®

- Unreinforced platinum silicone tubing
- Braid-reinforced platinum silicone hose
- Stainless steel wire and polyester mesh reinforced wrapped platinum silicone hose
- Polyester mesh reinforced 4-ply platinum silicone hose
- PTFE hose with stainless steel overbraiding (with or without overjacketing)
- Rubber-covered FEP or EPDM hose
- AdvantaFlex® BioPharmaceutical Grade Tubing
- Stainless steel sanitary crimp fittings and complete hose assemblies including molded silicone ends
- Identification solutions including GammaTag®, Hose Track®, and the P.E.T Process Equipment Tracking® Identification & Lifecycle Analysis System
- Special hose coverings, cleaning, and packaging