

Product Traceability Mini-Tutorial

By Quinn Garner

Product Traceability is the ability of a manufacturer to trace a product through its processing procedures and to also have the ability to re-trace a product back to the manufacturer. In most cases, product traceability is monitored by the use of a part or lot number. Product traceability systems are commonly implemented by a company's Quality Control department and give that department the visibility to the products. The QC department can use these systems to provide customers with processing data for the compliance to set procedures and policies. These systems can be used when a product is being recalled or has manufacturing problems. The ability to view manufacturing process data allows them to pull in other suspected recall lots and also assign responsibility to the defective product. In this paper the product traceability procedure will be based on a lot. A lot is a quantity of material with similar properties. A lot number or name is assigned to a lot at the beginning of its processing life or when a product has been purchased from a vendor and is entered into the system. In most cases this is not done manually, but instead is done by a lot traceability system that assigns a lot number when an item is received or from a purchase order. In some cases the lot number will be directly linked to the purchase order for the ability to track the lot back to the original order. Lot numbers can also be specific to the customer or vendor. Once the lots are assigned a lot number they are processed as required by the manufacturing specifics and tracked by the lot number that was assigned to it.

Product Traceability systems are being used to help improve the overall quality in the manufacturing process as businesses use Statistical Process Control programs to

include measurement data or processing data. By doing this they can monitor their processes and evaluate different variables on a product. Whenever a quality defect is found, the lot traceability function allows the manufacturer to review the data and determine the cause of the defect. Some examples of the data that would be available are who processed it, who inspected it, what tools were used, what were the processing parameters, machine set ups, and when the lot was ran. The purpose of this is to be able to track down problems or defects and prevent them from happening in the future. Product traceability systems are being used in all types of businesses from the computer industry to the meat packing industry. These systems allow businesses to maintain better inventory accounting, inventory control, and product quality.

An example of product traceability can be found in the following example of the meat packing industry. Product traceability is used to track a lot or in this example an individual carcasses and all of its processed products individually. This program gives the processing company the ability to know the production location, exact time of production, and information about any finished good items. Given the identification of the carcass, then all the details about those carcasses can be retrieved, including the farm property that supplied each carcass. Here is an example of how it works.

- Processed products are identified by a production number, production date and production location. Each item of inventory is traceable by:
 - Production Date, Time, Location
 - Processing specifications
 - Health Inspection Certificate
 - QA Code, Temperature of the carcass

- Production Date, Kill Date, Location
 - Expiration date
 - Production order and purchasing information
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- Carcasses are tagged with barcode labels that have the above information and the details to process the products/carcass.
 - The barcode labels allow them to trace the meat products or items to their final destination.

As you can see from the example the meat industry needs to maintain a large amount of data in order to keep their products safe for the consumers. Product traceability allows them to maintain that data and to provide it to their customers as needed as well as deal with recall and mis-processing issues. This is just one example of how this tool can be used. Each business is going to have a distinct set of circumstances and requirements for their traceability system and will more than likely need to modify an existing system to fit their needs.

In summary Product traceability systems provide a company the ability to store and retrieve the events that took place during processing and the ability to monitor and change those processes. By assigning a lot number/label to their products a company has the ability to single out quality related issues, improve inventory accountability, distinguish product for individual customers, and maintain inventory control.

Product Traceability information is a topic that is covered in most production and inventory control articles and publications. I was able to find some information from some APICS articles as well as in two publications by George W. Plossl in his books on Production and Inventory Control—Principles and Techniques.

Plossl, George W. 1995 Production and Inventory Control Principles and Techniques. New Jersey: Prentice-Hall, Inc.

APICS Inventory Management Reports. 1997. CPIM Inventory Management—Reprints. Falls Church, VA,; Library of Congress

Foster, S. Thomas. 2001 Managing Quality—An Integrative Approach. New Jersey: Prentice-Hall, Inc.

McCarthy and Associates. Intergrated Software for the Meat Processing Industry—UniWorks. Australia.