

# DuPont Qualicon RiboPrinter® System

## APPLICATION PROFILE

## RiboPrinter® Microbial Characterization System Tracks Bad Beer To Tap Contamination

Without a detailed analysis of a product before shipping, the blame for contamination can be dropped on a manufacturer's doorstep. Establishing a detailed microbial profile before product leaves your control can save money and protect any company's most valuable asset: Its reputation.

One brewing company learned this the hard way. Their volume of returns had soared to nearly 50,000 gallons a week when Qualicon, Inc. began working to pin down the problem.

Customers were sending back kegs or barrels of beer that were "off" or clearly spoiled. In most cases, these customers insisted that the fault lay in the brewing production and not in the dispensing of the beer. These "credit back" shipments cut profits and undermined the brand's image; logistical costs of arranging for the returns added to the amount of credit customers were demanding for their trouble.

### Custom ID Database Developed

The brewer suspected that the spoilage wasn't merely a production problem. The company worked with Qualicon™ applications specialists to develop a custom database of RiboPrint® patterns for the lactic acid bacteria that were the likely cause of the spoilage.

In the past, these lactic acid organisms had been difficult to isolate by biochemical tests, and whole cell protein patterns produced by these tests didn't differentiate between strains. RiboPrint® patterns did. By compiling RiboPrint® patterns (see Figure 1) from QA/QC samples on pre-shipment product and comparing them to RiboPrint® patterns from samples on return, it was clear that the offending organism had been introduced after the product left the brewer's control. *Lactobacillus* species was indeed present prior to shipping—patterns of *Lactobacillus fructivorans*, *L. delbrueckii* and *L. buchneri* proved their presence. However, the particularly fast growing and aggressive *Lactobacillus lindneri* was not. When it showed up in returns, the brewer could say with certainty that it had been introduced to the product after shipment, most probably the result of poor hygiene in tap equipment that dispensed the beer. A limited survey based on swabbing tap equipment at customer sites quickly supported this hunch. The survey revealed RiboPrint® patterns of *L. lindneri*.



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## Pinpointing Responsibility

By establishing the microbial profile of the beer before it left the brewer's control, the beer company was able to pinpoint responsibility for the contamination and work with customers to minimize or eliminate the problem. The number of returns was quickly reduced. Both the customer and the brewer benefited from the information: The brewer reduced return costs and customers located the source of the problem and avoided serving poor quality, off-tasting and foul-smelling beer to their clientele.

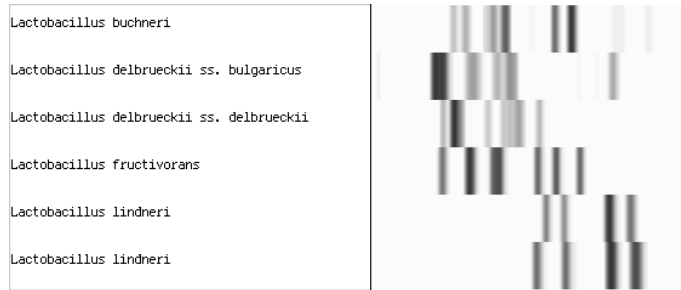


Figure 1. RiboPrint® patterns for *Lactobacillus* species associated with the contamination problem. Notice how distinct the genetics-based “fingerprints” for *Lactobacillus lindneri*, the organism found in the returned “off” beer, are from the other *Lactobacillus* RiboPrint® patterns found in the as-shipped beer.

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