

**SECURALINK™-G CLOSED
TRANSFER SYSTEM
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Abstract

The Securalink-G is a closed transfer system developed by Sotera Systems to address an important area of concern for products at risk under FQPA. The system design provides reduced risk of exposure and spills when transferring liquid product from a standard size container directly into the sprayer. A survey was conducted to help understand grower response to this type of technology prior to market introduction.

Introduction

Tuthill Corporation is a world leader in developing, manufacturing and marketing systems and components to industrial, petroleum, and agricultural industries. Privately held, the corporation's business is supported by over 30 locations and 24 manufacturing plants on 5 continents. Sotera Systems is the business arm of Tuthill Corporation focused exclusively on the crop protection industry. The mission of Sotera is to be a world leader in the development, manufacturing and marketing of closed transfer systems and accurate measuring systems for concentrated crop protection products. In partnership with Bayer and other leading agricultural companies, Securalink-G technology will be available to the market for the Spring 99 season to provide safer transfer for products at risk under FQPA and for other products or markets where closed system use is required or desirable.

Background

Link Research and Development designed and prototyped simple and effective closed system valves and adapters in 1988. Europe saw the first wide-spread commercial application of this technology through a program with Novartis (then Ciba-Geigy). Sotera, working closely with Link R&D and an outside consultant, Diamond Technology Partners, launched a market study to understand the viability of the Securalink technology in North American markets, as well as to assess the prevalence and satisfaction of current liquid ag-product transfer methods.

Market Study Scope

Twelve locations in North America were used to field the survey, with each having a fairly representative sample of respondents. Survey respondents were primarily growers,

with an average farm size of 670 acres per grower respondent. Total acreage represented in the survey group was almost ¼ million acres. The survey looked at the interest level in Securalink, usage preference, pricing and channel preference. Growers participated in an anonymous written survey, not a focus group in an effort to capture as many unaided responses as possible. Source for information quoted in this paper is Securalink, Volumetric Product Evaluation Survey; Diamond Technology Partners analysis. The study also analyzed liquid ag-products (herbicides, insecticides, and fungicides) used by farmers on 5 key crops, including corn, cotton, potatoes, soybeans and wheat.

Key Survey Results

Prior to the equipment demonstration, growers were asked to consider chemical transfer attributes including personal exposure, safe transfer, accuracy and others. Each of these items was defined within the survey. Personal exposure was the most important transfer method attribute to our grower respondents achieving almost 30% choice share. When asked to compare their attitude today versus five years ago, both personal exposure and safe transfer were ranked either much more important or somewhat more important by over 80% of the survey responses. Current transfer methods for the survey group ranged widely from mini-bulk with pump system to pouring open jugs. Some dissatisfaction was evident with all transfer options, but ranked higher when growers used product currently available in jugs or when a measuring container was incorporated in the transfer (separate survey options). Dissatisfaction was registered with the safety, risk of exposure and accuracy of these methods.

Following a functional demonstration of a Securalink closed system and explanation of components, 43% of all survey respondents indicated they were extremely or very interested in the technology. When considering the chemicals respondents currently purchased in jugs, the majority of growers (74%) opted for some Securalink configuration, while about 1/4 indicated they would maintain their current transfer method.

Survey participants were asked to provide unaided pricing responses to the Securalink system components. This included an incremental price they would be willing to pay for their chemical delivered in a 2 ½ gallon closed system jug. Growers valued the technology at slightly over \$ 5 for each 2 ½ gallon jug delivered with the Securalink closed system transfer valve. Unaided pricing expectations for other system components, like the Tank Adapter were consistent with proposed retail pricing from Sotera and interest held through various aided pricing scenarios presented to the survey participants.

The growers were then asked to choose from a variety of farm input suppliers to show their preference on how to access this technology. No surprise, our survey respondents overwhelmingly saw the Securalink system available through their local chemical dealer.

All survey results were compiled and analyzed by Diamond Technology Partners and presented to Sotera and Link R&D.

Study Conclusions

Survey conclusions pointed to the viability of this product concept in the marketplace given that over 50% of the Growers would consider switching from their current methods of transfer to a closed system like Securalink. The technology offered improvements to stated grower concerns over exposure, liability, safety, convenience and ease of use. Based on the results of the survey, Sotera contracted with Link R&D to develop a family of closed systems for grower use.

FQPA Product Review

With the pending threat to ban organophosphates and carbamates now under FQPA review, Bayer saw the application of this technology providing safer delivery of this important class of products. Bayer partnered with Sotera Systems, who developed this technology and now is manufacturing for 1999 season use. Unlike other closed systems on the market which are costly or focus only on the needs of the largest applicators, the G in Securalink-G designates a system for closed system delivery which is simple and effective for use by even the individual grower.

System Components

Securalink-G closed system valve is comprised of five key parts; Housing, Adapter, Valve, Retaining Ring and Tamper Evident Cap. There are no metal components in the Securalink-G valve. The five parts are constructed of the same materials used in standard ag-product jugs to aid disposal and recyclability under currently available programs. The Securalink-G valve replaces the standard 64mm threaded cap on a 2 ½ gal (or similar) sized container and would be installed at the formulation plant when the container is filled. Jugs using Securalink-G will be delivered to the grower generally in the popular 2 x 2 ½ package. The valve includes a locking mechanism to prevent removal from the container and a tamper evident cap.

Grower Initial Use Step

Prior to jug use, the grower installs a tank adapter on the sprayer tank or mix-fill tank. Instructions for installation are included with each tank adapter kit. Adapter installation should take about 20 minutes.

Transfer with Securalink-G

When the tamper evident cap is removed, the jug is inverted and locks to the tank adapter using symmetrical ears that are keyed to openings in the platform. Rotating the container counter-clockwise opens the valve and permits dispensing of product by gravity. Rotating the container clock-wise will initially slow, then shut-off the Securalink-G valve permitting full user control of the dispensing process. When empty, container can be triple rinsed using approved current technology or an optional closed system power-rinse adapter will be available for the Securalink-G system.

Complete user instructions will be included in each carton and in each tank adapter kit. Rigorous engineering standards and testing are in place for both the complete Securalink-G valve and individual components to assure high product quality.

Market Availability

The Securalink-G valve is being offered on a broad market basis to all basic manufacturers and formulators. Consistent with the results of our survey and to assure easy use of the product, tank adapters and the jug rinser will be widely marketed through the local fertilizer/chemical dealers, coops and other interested parties. A wide group of products from several manufacturers will be available to growers for 1999 season use.

The basic Sotera model numbers for Securalink components discussed in this paper are:

- Securalink-G valve, standard version, viton seals
SLVC50
- Securalink-G valve, vented version, viton seals
SLVC50V
- Tank Adapter Kit with dust cap
SLTA50
- Power-rinse adapter
SLTR50

Other Securalink valve models are available to the market based on alternate seal materials or fluorination levels.