



# Department of Pesticide Regulation



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Director

## MEMORANDUM

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Governor

TO: George Farnsworth  
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*[Original signed by H. Fong]*

DATE: January 6, 2011

SUBJECT: EVALUATION OF THE PROTOTYPE "GOAT-THROAT" CLOSED SYSTEM  
DEMONSTRATED IN FRESNO COUNTY ON NOVEMBER 15, 2010

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On November 15, 2010, I traveled to the Fresno office of the Enforcement Branch's Central Regional Office to view a demonstration of the prototype closed-system designed by GoatThroat Pumps (GTP) of Milford, CT. This demonstration was to provide verification that the closed-system component designed and manufactured by GTP complied with the closed-system requirements as stated in the Director's Closed System Criteria (1998) document. Their particular component was the GT-300 manual pump, specially modified to meet the requirements for a closed-system device. The specific modifications related to the GT-300 included a water rinse system, a pressure relief valve and the use of dry-break couplers. Hoses for moving liquids through the GT-300 (both out of the pesticide container for mixing/loading and back into the container for rinsing), as well as a measuring meter, are included as parts of the closed-system loading components unique to the GTP system.

The GTP would be classified as a suction-extraction device, as defined by HS Report 1849. The GTP uses a manually actuated pressurizing pump to force fluid from the container into the delivery hoses of the system. The GTP is designed to fit 63 millimeter diameter container openings (also referred to as the container "finish") of 2.5 gallon F-style pesticide containers. Sixty three millimeter is one of the finish sizes required for non-returnable pesticide containers according to Title 40 Code of Federal Regulations Part 165.25 (d)(3). Photos One and Two shows the GTP pumping component attached to a 2.5 gallon F-style pesticide container.





Photo One: GTP pumping component attached to container



Photo Two: GTP pumping component attached to container, showing dry couplers

The GTP system was wedded to a typical plumbing and pump assembly that provided the rinse water to the GTP and moved the liquids throughout the system. Photo Three shows the system without the GTP pumping component on the pesticide container and Photo Four shows the complete system with GTP attached. However, the gasoline-powered pump does not provide pressure for removing the pesticide from the original container; this is provided by the manual pump of the GTP. During rinsing, either the manual pump or the gasoline-powered pump can push rinsate out of the container, though to fully empty the container the manual pump must be used.



Photo Three: Mixing/loading system without GTP suction/extraction unit

Because of the design of the plastic stinger inserted into the container to remove the pesticide, there may be potential for excessive residue left in the container. The stinger tip is cut at an oblique angle, forming a “point” with which to puncture the foil covers found on many pesticide container openings. The stinger in the exemplar GTP was cut such that a liquid layer of 1 centimeter may be left in the bottom of the container. To reduce the potential leavings, the President of GTP stated that a less oblique angle for the stinger-end should be available for the production units. It should be noted that this condition is not necessarily unique to the GTP but can also be found in other suction-extraction systems. Care must be taken with suction-extraction devices to ensure that the extracting tube siphons as much as possible from the container, by such



Photo Four: Mixing/loading system with GTP suction/extraction unit in place

efforts as moving the extraction tube along the container floor and by tipping the container to pool residue for easier extraction. Also demonstrated by GTP, and visible in Photos Three and Four, is a container stabilized cage, to both lift the container to an appropriate working height and to prevent container tipping while the GTP pump is attached to the container.

After observing the demonstration, the GTP appears to comply with the Director's Criteria for use as a component of a closed system. Subsequent commercially available systems should be reviewed by the local County Agricultural Commissioner's office to ensure compliance, not only for the GTP component, but also for engineering and design compliance of the remaining system parts downstream from the GTP device.