

Health and Safety

Report

Worker Health and Safety Branch

HS-1899

**Guidelines for Developing and Manufacturing a Closed System Compliant with the
Requirements of Title 3 California Code of Regulations
Section 6746**

By

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November 16, 2015

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This document was developed to assist users and manufacturers in understanding the Closed System requirements of the California Department of Pesticide Regulation. These criteria do not preclude closed systems procedures or design techniques other than those outlined. Questions concerning the ability of other procedures to meet the Closed System requirement should be addressed to the Department of Pesticide Regulation, Worker Health and Safety Branch.

California categorizes closed systems as being either Tier I (a system in which pesticide extraction and rinsate extraction must be accomplished with the closed system elements engaged) or Tier II (a system where pesticide extraction must be with the closed system elements engaged; rinsing and rinsate extraction may be done by means other than the closed system elements).

Where appropriate, reference to either Section 6746 (Closed Systems) or Section 6742 (Safe Equipment) regulatory requirements, have been cited. *Attributes listed at the end of this document are purely advisory and are optional for the closed system.*

To meet California's Closed System requirement, as found in Title 3 California Code of Regulations, Section 6746, a closed system must have the following attributes:

- ❖ To meet the basic criteria of a closed system, the entire transfer system, from original container to the final hose carrying application-ready material to the application equipment, must not leak any pesticide (6746[b][1] and [f][1]).
- ❖ All equipment on a closed system must be of the proper type and manufacture for its use. All elements of the system, such as hoses, connectors, and valves, must be appropriate to the pesticides transferred and the pressures or vacuums generated during system operation. All parts of the system shall be maintained, as specified in manufacturer's recommendations, to ensure system integrity (6746[f][2][A] and [g][4]).
- ❖ All sight gauges on closed system equipment must be protected from breakage. All sight gauges must be equipped with shut-off valves both top and bottom (6742 [b][5]).
- ❖ All couplers must be equipped with a shut-off device or procedure that prevents decoupling drippage (6742 [b][3]).

Systems depending on suction extraction or the use of a probe or inserting element to remove material from a pesticide container shall conform to the following:

- ❖ For Tier I systems, any portion of the closed system which is inserted into the original container or which seals against the opening of the original container must be designed to clean and rinse itself within the original container or to otherwise prevent handler contact with the contaminated surfaces until a secure

cleaning procedure, integral to the design of the closed system, is implemented (6746[b][1] and [b][2]).

- ❖ Emptied pesticide containers that are categorized as Tier I must be rinsed while still engaged to the closed system. Rinsate must also be transferred by closed system. Pesticide containers required to be returned to the dealer or manufacturers are exempt from this requirement. Detailed rinsing procedures are found in Title 3 CCR Section 6684: Rinse and Drain Procedures (6746[b][2] and 6746[f][2][B]).
- ❖ The rinsing devices must be able to rinse the entire accessible inner surface of the container and must not rupture the container by overpressurizing (6746[f][2][C]).
- ❖ An employee operating a closed system must have an instruction manual encompassing operating procedures, maintenance, cleaning and repair. This manual must also include information on any restrictions or limitations relating to the system, such as pesticides that are incompatible with materials used in the construction of the system, types (or sizes) of containers or closures that cannot be handled by the system, any limits on ability to correct or over measurement of a pesticide, or special procedures or limitations on the ability of the system to deal with partial containers (6746[g][1] and [g][2]).
- ❖ The instruction manual must be legible and accompany the closed system (6746[g][3]).
- ❖ The employer shall ensure persons operating a closed system are trained in operational competency of the system they are using. Documentation of this training must be made as required under Title 3 CCR Section 6724 (b)(10)(6746[d]).
- ❖ All personal protective equipment required by label, permit or regulation must be at the worksite during operation of the closed system. Protective eyewear must be worn while using a closed system. While using a closed system, the label's Personal Protective Equipment requirements may be reduced or modified as provided in Title 3 California Code of Regulations, Section 6738.4: Personal Protective Equipment Exemptions (6746 [e]).
- ❖ The opening of a container by removal of the manufacturer's original sealing device or devices, without removing any of the contents, does not constitute violation of the closed system regulations. However, such "open container" must immediately be used or resealed with a liquid-tight sealing device (6746[h][2]).

The following are recommendations and are not required for Closed Systems used in California.

- ❖ If the connection to the container opening is a type that does not securely seal to the container opening, the inserting element should have a splash shroud that is

20% greater in diameter than the container opening. This shroud should fit against the opening.

- ❖ Systems using suction extraction should have a container stabilization cage capable of holding a container of at least 2.5 gallons. Additional stabilizer holders for containers less than 2.5 gallons may also be included.
- ❖ A maintenance log, describing the details of work performed on the closed system, should be maintained at the local headquarters from which the closed system is normally deployed from.
- ❖ Closed systems should be equipped with an emergency stop device that immediately shuts down all movement of material within the system.
- ❖ Closed systems should clearly identify all pipes and hoses, levers and valves as to their function and contents