

Inspection of Fog and LVM application equipment in the Netherlands

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Introduction

In the Netherlands is the inspection of field and orchard sprayers mandatory since 1997 and 2002. But with the implementation of the EU directive for a sustainable use of pesticides (2009/128/EC) also the periodical inspection of other types of application equipment will be mandatory before the end of 2016. From the end of 2014 the obligation to inspect these machines is gradually introduced, depending of their year of construction. This includes also the periodical inspection of Low Volume application equipment like thermal (fog) and compression (LVM) misting machines used for the application of pesticides in greenhouses and potato storage.

Definition of the equipment

The definition of Low Volume application equipment is: 'Equipment which produce very small 1-50 µm droplets used for a special treatment of pests with Low Volume Application Rate.'

In general there are two types of this equipment, based on their difference of energy source to create droplets:

- Fogging (thermal misting): Thermal energy used to create and transport droplets



- LVM (compression misting): Energy from compressed air used to create droplets and transport by additional fan.



Inspection of Low Volume Application Equipment

For this type of equipment no (harmonized) EN or ISO standard is available or in development at the moment what can be used for the periodical inspection of the machines in use. Therefore SKL in the Netherlands has developed their own inspection protocol. This is done on base of Annex II of 2009/128/EC with the use of the systematics and relevant content of the already existing EN-ISO 16122 series.

This inspection protocol was developed with the assistance of experts and manufacturers of Fog and LVM equipment. One of the problems arising is, that there are also no standards for new equipment, and there is a wide variety and diversity of machines on the market.

On base of this first inspection protocol the first machines (manufactured before 1996) are inspected this year. The end of the year this protocol will be evaluated on base of this first experience and can be used for input for the development of harmonized EN-ISO standards in the 16122 series.

Inspection protocol

One of the most important conditions for a good functioning of this type of machines is their general state of inner-cleanness and state of maintenance.

Before starting the inspections the pre-inspection of EN-ISO16122:1 is used, for LVM equipment special attention has to made on the internal cleanness of the machines and for Fogging equipment the conditions of EN-ISO16122:1 are complemented with the following conditions:

- Condition exhaust pipe
- Recent maintenance (max. ½ year since the last maintenance)
- Relevant part are renewed:
 - Spark plug
 - Valves in fuel system
 - Valves in fluid system
 - Membrane in carburettor

Because high concentration of pesticides is used with this type of machines, special attention has to made also on the outside cleanness of the machines in order to decrease the risk of the inspector.

During the inspection all relevant parts are checked. For most elements this is a visual inspection. The flow of the nozzle is checked on base of data what has to be supplied by the manufacturer. For most machines this data is not available at the moment, so cooperation of the manufacturers is important to supply the relevant data.

The inspection is finalised with a visual check of the misting pattern.

Based on this protocol special inspection reports are developed based on the general requirements of EN-ISO 16122:1 paragraph 7.

In the Netherlands is decided that the inspection frequency of this machines is every 6 years instead of 3 years for the other types of application equipment.

Conclusion

Because of the lack of existing relevant standards for the inspection of Fog and LVM equipment in use, SKL in the Netherlands has developed his own testing protocol. It appears that developing a general inspection protocol for this type of equipment is difficult because of the missing of standards for new machines, the wide variety of machines and types on the market and the missing of relevant data of flow-rates for nozzles.

For the nearby future harmonized standards for both new (EN-ISO16119) and for testing machines in use (EN-ISO16122) are needed for uniform testing across Europe.