



Filtered air cabins for spraying of pesticides

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EU policy to ensure a high level of protection of human health and the environment and at the same time to safeguard the competitiveness of Community agriculture

REGULATION (EC) No 1107/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2009 :

concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC

AND IMPLEMENTING REGULATIONS (EU 544/2011 ; 545/2011; 546/2011)

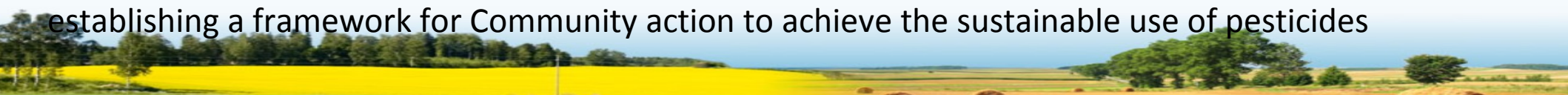
COMMISSION DIRECTIVE 2010/52/EU of 2010

amending, for the purposes of adaptation of their technical provisions, Council Directive 76/763/EEC relating to passenger seats for wheeled agricultural or forestry tractors and Directive 2009/144/EC of the European Parliament and of the Council on certain components and characteristics of wheeled agricultural or forestry tractors

DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2006 on machinery, and amending Directive 95/16/EC (recast)

DIRECTIVE 2009/127/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2009 amending Directive 2006/42/EC with regard to machinery for pesticide application

DIRECTIVE 2009/128/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2009 establishing a framework for Community action to achieve the sustainable use of pesticides



Tractors are submitted to mandatory provisions relating to the design and construction of the products to ensure a high level of protection of the health and safety of persons

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Prevention of Contact with Hazardous Substances

The requirements of EN 15695-1:2009 shall apply to all tractors defined in Article 2(j) of Directive 2003/37/EC, if they are being used in conditions which may cause the risk of contact with hazardous substances; in such case the cabin has to fulfil the requirements of level 2, 3 or 4 of this standard. The criteria for the choice between the levels must be described and be in line with those indicated in the operator's manual. ***For spraying of pesticides the cabin must be of level 4 (according to the requirements of EN 15695-1:2009) which provides protection against dust(s), aerosols and vapours.***

→ If the cabin is not of level 4 : operator's manual shall provide the information that the cab do not provide protection against vapors and the tractor shall not be used to spray pesticides

Member State certifies that a type of vehicle, system, component or separate technical unit satisfies the relevant technical requirements of these Directives.



Self-propelled sprayers are submitted to mandatory provisions relating to the design and construction of the products to ensure a high level of protection of the health and safety of persons

DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2006 on machinery, and amending Directive 95/16/EC (recast)

DIRECTIVE 2009/127/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2009 amending Directive 2006/42/EC with regard to machinery for pesticide application

By the iterative process of risk assessment and risk reduction referred to above, the manufacturer or his authorised representative shall evaluate the risks, with a view to determining whether risk reduction is required, in accordance with the objective of these Directives, AND eliminate the hazards or reduce the risks associated with these hazards by application of protective measures, in the order of priority established in section 1.1.2(b).

→ FR authorities's point of view : For spraying of pesticides the cabin should be of level 4 (according to he requirements of EN 15695-1:2009) which provides protection against dust(s), aerosols and vapours.

The manufacturer or his authorised representative shall certify the conformity of machinery with the provisions of these Directives.



EN 15695-1:2009 The objective of this European Standard is to improve the operator protection by using the protective function of the cab of self-propelled sprayers and tractors in case of mounted or trailed sprayers (in priority to the use of PPE).

More than 350 active substances and thousands plant protection products for several purposes are allowed in EU :

The risks for those using plant protection products depend on the physical, chemical and toxicological properties* of the plant protection product as well as the type of the product (undiluted/diluted), and on the route, the degree and duration of exposure :

→ The conditions of the authorisation shall be in compliance with the limit value established* for the active substance and/or toxicologically relevant compound(s) of the product.

Exposure : the cabin must be of level 4

- **Handling, loading and mixing of product : cutaneous route >> other routes**
- **Spraying operations : inhalation route can not be neglected : aerosols, dust(s) and gazes (from volatilisation) contribute to the global operator's exposure**
- **Use of (contaminated) protective clothing/equipment in a cab can be a major source of exposure/discomfort**





RG 655B

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LE CONCEPT
MAGASIN AGCO
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Efficiency, the cab shall be fitted with an air delivery and filtration system aimed at limiting the exposure of the operator (driver) to pesticides, in agricultural and forestry operations as specified in EN 15695:2009 +AC

Filter requirements aimed at reducing dust(s), aerosols and vapors (EN 15695-2).

The filter/vapors shall meet the requirements of the type "A" filter as specified in EN 14387:2004

→ The manufacturer or his authorised representative shall certify the conformity of his filter : is it sufficient for an essential safety component ?

→ How to ensure long term efficiency of cabin filters ? How to warn the operator when cabin filters are saturated ?

→ Relationship between filter performances and costs ?

Suggestions

- Add air filters to the list of the annex IV of Machinery directive 2006/42/EC (CE type procedure) ?
- The situation for filter/tractor should be clarified,
- Manufacturer of the filter should commit on an efficiency life of his filter, and this data should appear in the operator's manual,
- Filter should be replaced at least every year, and this requirement should appear in the operator's manual,
- Development of an universal air filter ? Air filter should be easily replace.

Efficiency, the cab shall be fitted with an air delivery and filtration system aimed at limiting the exposure of the operator (driver) to pesticides, in agricultural and forestry operations as specified in EN 15695:2009

Determination of leakages of air delivery and filtration system installed in the cab / Isolation effectiveness of air delivery and filtration system installed in the cab (EN 15695-1)

Requirements :

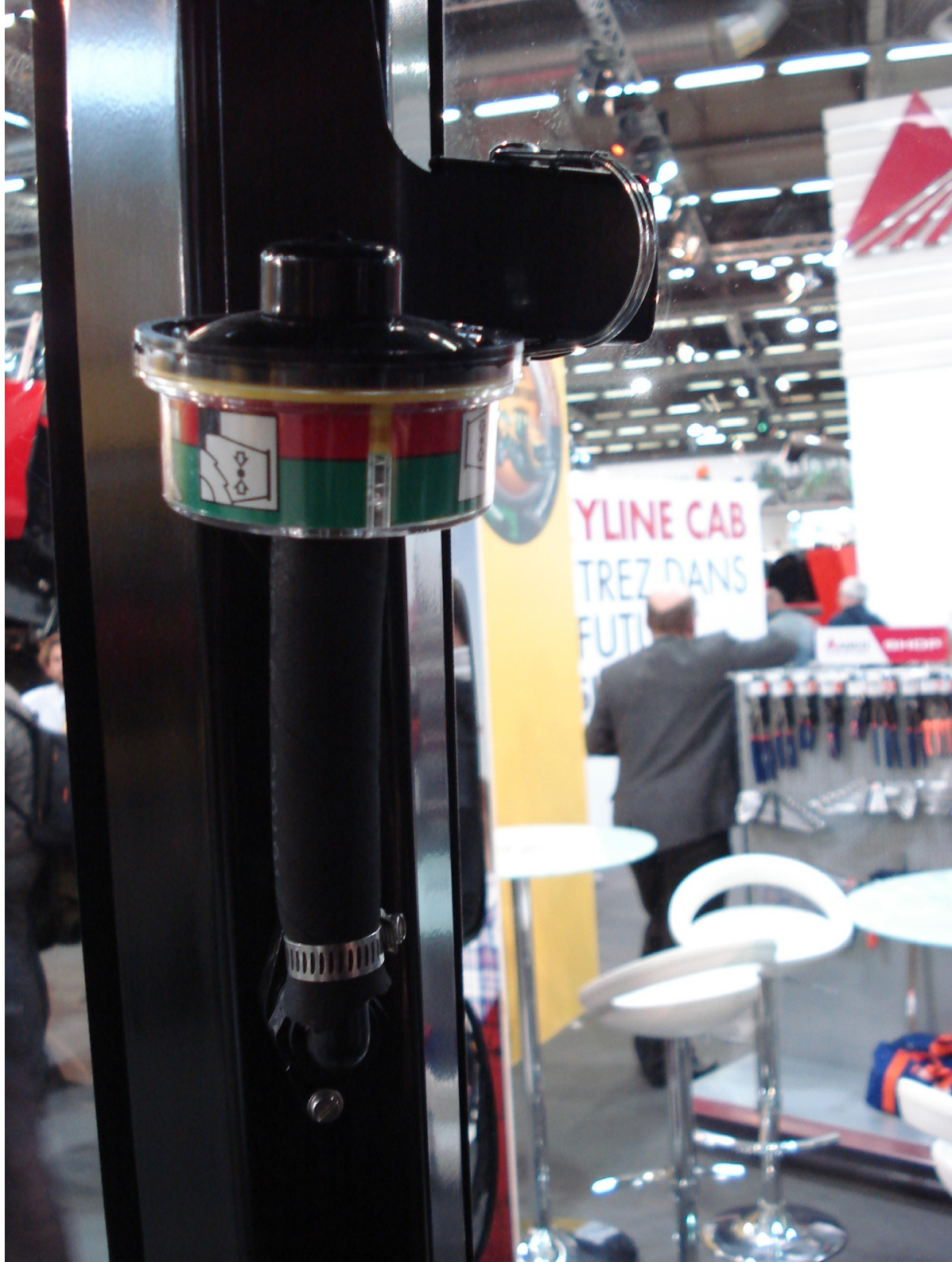
- | | | |
|---|--|---|
| <ul style="list-style-type: none">▪ Fully closed structures → Air cond.▪ Force ventilated▪ Overpressurized▪ (against dusts)▪ (against aerosols and gazes) | | <ul style="list-style-type: none">→ Airflow $\geq 30\text{m}^3.\text{h}^{-1}$→ Overpressure of 50 Pa in test and 20 Pa in indication→ Leakages $< 2\%$→ Protection efficiency $> 98\%$ /aerosols test |
|---|--|---|

→ 2 methods available but only the method/aerosols allows to test efficiency of (cab + filter)

→ How to ensure long term isolation effectiveness of the cabin ?

Suggestions

- The overpressure indicator is probably the most efficient/simple tool to check the isolation effectiveness of the cabin and the air filter saturation
 - This device should be improved to warn the operator and minimum performances shall be required.



YLINE CAB
TREZ DANS
FUTU

Works in progress, to optimise conception and efficiency of level 4 cabins for both tractors and self-propelled sprayers

Regulation :

- Add air filters to the list of the annex IV of directive 2006/42/EC ?
- Consider filters as 'separate units' which may be type-approved separately in relation to one or more specified types of vehicles*?

European standard EN 15695 : 2009 + AC : *leave well enough alone...*

- Increase application of this standard until more feedback is available

Technical projects : on the EU level ?

- Develop universal (compartment + air filter) ?
- Develop the reconditioning of air filter ?
- Develop specific warning device to prevent air filter saturation

*As defined in directive 2003/37/CE on type-approval of agricultural or forestry tractors, their trailers and interchangeable towed machinery, together with their systems, components, and separate technical units.

