



# **Seed Treatment Operator Safety Guidelines**

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## **Guidelines and their purpose**

**The commitment of the entire supply chain is crucial in providing high quality treated seed while ensuring its safe use.**

The following guidelines have been developed to encourage operator safety for all stakeholders in the seed treatment industry. Detailed in the guidelines are good practices each stakeholder should promote as a responsible member of the supply chain.

These guidelines are not intended to serve as a legal reference. They are not binding on ISF members. Local and national regulations take precedent and must be complied with.

## **Disclaimer**

This document has been developed based on the current technical state of the art. It does not discharge anybody from the responsibility to check and respect the regulatory framework of the countries where treated seed is produced, sold and used. Procedures recommended in these guidelines may differ from those specified by national regulations.

ISF cannot be held liable for any possible claims associated with the application of these guidelines.

# Seed Treatment Operator Safety Guidelines

## Introduction

Plant Protection Products (PPPs) applied as seed treatments provide a sustainable method of protecting the crop:

- Seed treatments limits the quantity of active ingredients used, reducing the environmental impact
- Application of targeted rates of seed treatment products can be precisely monitored
- Application can be performed under controlled conditions providing significant benefits for the environment, for example:
  - dust can be reduced to a minimum by appropriate seed cleaning processes and the use of low-dust seed treatment recipes
  - treatment run-off or drift is minimized because the treated seed is buried

Seed treatment application needs to comply with Health, Safety and Environment (HSE) protection standards. Operator dermal and respiratory exposure must be minimized from

- direct contact with chemical or biological seed treatment products, or
- dust from treated seed

Therefore, operators should be trained in proper application processes and in the use of the appropriate Personal Protection Equipment (PPE). The treatment facility should be appropriately equipped (e.g. dust extraction equipment) to minimize operator's exposure.

Workers at a seed treatment application site may be exposed to Seed Applied Products at several different stages during the application process, subsequent handling/packaging of treated seed, and the treated seed distribution process. Exposure also varies depending on the configuration of the facilities and is influenced by the safety consciousness and hygiene practices of the operators. A risk analysis helps to identify critical points of exposure and develop appropriate counter measures.

Continuous improvement of best management practices is needed to ensure ongoing operator safety. To instill a corporate safety culture requires the commitment of company management to HSE improvement programs. Effective improvement processes, include all stakeholders including operator's feedback.

This document contains guidelines to help companies to optimize operator safety during seed treatment operations. Government or state regulations covering Seed Applied Products and their use have precedence and must be followed. This document does not replace the laws and regulations but complements them.

## Regulatory Aspects

Worker Protection Regulations: In many countries, operators' protection at work places is regulated by government safety standards. All such legal requirements must be implemented for seed treatment operations.

Seed Treatment Registration: Operator safety assessment is a part of the product registration process in most countries. It includes identification of hazardous components of the products and risk assessment associated with application of PPPs to seeds. The label recommendation regarding the application process and PPE must be followed.

## **Principles of Operator Safety**

### **Choice of the Appropriate Seed Applied Products**

- Only products registered/approved as a seed treatment product may be used since they have been specifically formulated for the seed treatment application process while minimizing operator exposure.
- Use only tested and documented recipes containing Seed Applied Products.
- All processing steps should be evaluated with regard to their safety aspects.

The number of operations with potential for higher exposure levels should be minimized: e.g. cleaning and grading of seed, preparation of slurries, cleaning of the equipment and disposal of waste.

- Appropriate seed processing equipment should be used to reduce exposure of workers: e.g. air exhaust systems, dust extraction, closed systems, dry-break couplings when available.
- Manufacturers' label recommendation regarding application and risk mitigation must always be followed.

### **Clean Working Practices**

A well organized and clean working environment is critical to reduce contamination, and helps to minimize emergencies or accidents.

All waste should be collected immediately in an appropriate container according to its hazard potential and subsequent disposal.

Each employee should strive to minimize the amount of waste.

### **Training and Operator Awareness**

It is important that all operators are trained in current best management practices.

All necessary information concerning products in use is readily available.

New workers should receive training specific to the seed treatment application process and be made aware of safety practices in the working environment.

Some crop protection companies may propose specific training for seed treatment operators or supervisors.

Operator training should be refreshed at regular intervals and whenever new products or processes are introduced.

Basic safety concepts such as wearing proper PPE, not to eat, drink or smoke at the work place should be reinforced with workers frequently.

### **Conclusion**

The safe use of seed treatment requires the Management's outward and visible commitment for a comprehensive worker safety protection program. It also requires its ongoing support for resources to develop standards and training process improvement.

It is absolutely necessary that plant operators commit to:

- learning about the seed treatment product characteristics and recipes
- understanding the importance of handling products properly for everyone's health and safety

- understanding the equipment used and how to operate it in a safe manner
- being aware of the safety requirements stated by the product label and/or communicated by the manufacturer

This includes ongoing training to continuously upgrade each operator's awareness of new/different safety practices.

The guidelines in this document offer a checklist for training and motivating seed treatment operators allowing them to act as informed, trained and attentive stakeholders. By so doing, the operators will protect themselves, co-workers & users, the environment, and the reputation of the industry and their company.

## Glossary of Terms

Plant Protection Products (PPP)	Formulated products containing active ingredients incl. biologicals requiring regulatory approval
Seed Applied Products	PPP, film coating products, other biologicals, basic substances, colorants, polymers, etc
Personal Protection Equipment (PPE)	Protective clothes, overalls; gloves; safety glasses; dust mask and other respiratory protection equipment
HSE	Health, Safety and Environment

## Some Practical Recommendations

The following checklists can help to implement safety measures.

### PLANT MANAGER CHECK LIST

<b><u>TEAM</u></b>	
<b>Subject</b>	<b>Recommended measures</b>
<p>Is my team properly trained to:</p> <ul style="list-style-type: none"> <li>• Understand product hazard classification and protection measures needed?</li> <li>• Operate seed treatment machinery efficiently and safely?</li> <li>• React safely in case of accident?</li> </ul>	<p>Organize training with support as necessary from the plant protection product supplier or seed treatment machinery manufacturer.</p> <p>Develop and implement an emergency and recovery plan.</p>
<p>Is all necessary information available for the workers?</p>	<p>Make all necessary documents (Labels, MSDS, Product information relevant for application) readily available to the operators.</p>
<p>Is safety of workers and of the environment a priority for management?</p>	<p>Training and continuous education of operators e.g. using posters, leaflets, on-the-job training.</p> <p>Plan work practices to minimize routine work and increase the attentiveness of operators.</p> <p>Prepare the corresponding safety guidelines to show the critical safety points in the treatment plant.</p>
<b><u>PRODUCT USED</u></b>	
<b>Subject</b>	<b>Recommended measures</b>
<p>Is the product registered for the intended use?</p>	<p>Review product label and compare with alternatives on the market.</p>
<p>Is the product used in an appropriate way?</p>	<p>Develop reliable and sustainable treating recipes (incl. machine settings) which are proven to result in an acceptable product quality.</p> <p>Make sure that only the agreed and confirmed recipes are used.</p>
<b><u>MACHINERY, PROCESSES AND FACILITY</u></b>	
<b>Subject</b>	<b>Recommended measures</b>
<p>Are the facilities used for treatment application and handling of treated seed appropriate?</p>	<p>Use equipment specifically designed for seed treatment application. .</p> <p>Have dust extraction and filtration systems installed wherever workers or the environment may become contaminated with hazardous substances.</p> <p>Use installations which handle the seeds gently e.g. for transport of seeds.</p>

<p>Is the passive protection equipment appropriate and correctly maintained? (air/dust extraction systems, closed systems)?</p>	<p>Machinery manufacturers as well as PPP suppliers may be able to provide advice and maintenance services.</p>
<p>Is the seed treatment equipment in an appropriate status and correctly maintained?</p>	<p>Clean machines regularly / when necessary as recommended.</p> <p>Organize regular maintenance of all installations (treatment machinery, exhaust / dust collectors...).</p> <p>Motivate operators to keep a critical eye on machines and seed treatment quality.</p>
<p>Can processes be improved to limit critical steps (calibration, cleaning, bagging)?</p>	<p>Identify processing steps to minimize operators and environmental exposure.</p> <p>Organize a plant audit in conjunction with the safety engineers and the operators.</p>
<p>Is appropriate Personal Protective Equipment (PPE) available and regularly cleaned and replaced when necessary?</p> <p>Do operators use the PPE provided?</p>	<p>Monitor practices on a predetermined schedule and implement positive corrective actions as required.</p>
<p>Are safety and First Aid equipment available to operators?</p> <p>Are sufficient staff trained in First Aid?</p>	<p>Have First Aid equipment installed (e.g. First Aid boxes, eye douches, emergency shower).</p> <p>Ensure that First Aiders are present at all production shifts and that their training is regularly refreshed.</p>
<p>Do the operators act safely?</p>	<p>Motivate operators to use PPE correctly and not to eat, drink or smoke in the application facilities. Organize separate dining facilities where PPE must not be worn.</p>
<p>Are seed treatment products stored safely?</p> <p>Are waste (slurry and treated seeds) managed properly?</p>	<p>Ensure that storage conditions are compliant with official regulations.</p> <p>Ensure that waste is not released into the environment but disposed of through an approved process or through a licensed disposal company.</p>
<p>Are the working facilities regularly inspected and all issues documented and addressed?</p>	<p>Conduct risk assessment studies of all critical access points in the process</p> <p>Identify safety-critical processing steps.</p> <p>Regularly monitor all assessments to ensure all issues are fixed and documented.</p>
<p>Is the working environment clean and safe?</p>	<p>Have a well-organized working place.</p> <p>Keep the working place clean.</p> <p>Dispose of waste appropriately.</p> <p>Minimize waste.</p>

## OPERATORS CHECK LIST

<b><u>BEFORE TREATMENT OPERATIONS</u></b>	
<b>Subject</b>	<b>Recommended measures</b>
<p>Have I read the instructions for use?</p> <p>Do I wear the appropriate PPE for the product used and for the operation I am about to perform?</p> <p>Do I know how to operate the machinery and protective equipment (ventilation, etc)?</p> <p>Is the machinery clean and does it work properly?</p> <p>Do I have the complete work order containing all necessary parameters (species/variety/hybrid/TKW/ recipes of PPP products)</p> <p>Do I know how to react in case of emergency/accident?</p>	<p>Acquire appropriate training in the use of seed treatment products / recipes as well as seed treatment application equipment.</p> <p>Have access to and read all safety information relating to the product used.</p> <p>Don't hesitate to ask for information and assistance if and when necessary.</p>
<b><u>DURING TREATMENT OPERATIONS</u></b>	
<b>Subject</b>	<b>Recommended measures</b>
<p>How do I perform this task while minimizing the risk for myself?</p>	<p>Check that the PPP packaging is intact and in good condition.</p> <p>Avoid direct contact with PPPs. Wash affected areas in case of contamination.</p> <p>Do not smoke, eat or drink during work and in the application facility.</p> <p>Always wear the appropriate PPE.</p> <p>Always follow instructions of use for the PPPs.</p> <p>Always use the correct and confirmed recipes.</p>
<p>How do I minimize risk for the environment?</p>	<p>Check that the machine is in proper working order (cleanness, all parts working properly...)</p> <p>Critically monitor the process (e.g. visible product quality).</p> <p>Inform the supervisor in case of any deviations.</p>
<b><u>AFTER TREATMENT OPERATIONS</u></b>	
<b>Subject</b>	<b>Recommended measures</b>
<p>How do I leave the plant in a safe condition for my colleagues on the next shift?</p>	<p>Ensure machines and working place are clean.</p> <p>Place leftover products in their original containers or in appropriate waste disposal containers.</p>



<p>Did I communicate the necessary information to the following shift and the management?</p>	<p>Record operations in a treatment work-sheet for each job stating:</p> <ul style="list-style-type: none"> <li>- Quantity of seeds treated</li> <li>- Quantity of seed treatment used</li> <li>- Recipe used</li> <li>- Any safety issues observed or to be monitored.</li> </ul>
<p>What do I do for my own safety after work?</p>	<p>After work remove PPE and clean or discard it.          Replace damaged items.          Thoroughly wash/shower after work and change into non contaminated clothes.</p>
<p>In general</p>	<p>Refer safety issues or ideas for improvement to the management.</p>