2026

Syngenta Storage and Safety Guidelines

SYNGENTA CROP PROTECTION, LLC

Pesticides should be used and stored in compliance with all applicable federal, state and local laws and regulations. These Syngenta Storage and Safety Guidelines ("Guidelines") are intended to supplement such laws and regulations. ALWAYS CONSULT APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES TO ENSURE COMPLIANCE. ALWAYS READ AND FOLLOW PESTICIDE PRODUCT LABELS BEFORE USE.

Syngenta provides these Guidelines in support of its continuing commitment to the stewardship of crop protection package products and seed treatments. The information provided in these Guidelines is intended for reference purposes only. SYNGENTA MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL SYNGENTA BE LIABLE FOR CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES. TO THE FULLEST EXTENT POSSIBLE PURSUANT TO APPLICABLE LAW, SYNGENTA, ITS AFFILIATES AND LICENSORS DISCLAIM ALL WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Contents

Last updated May 06, 2024

Location and Site Factors

Chemical Hazards

Knowledge of product hazards is an essential prerequisite to safe warehousing. Common sources of information includes the Safety Data Sheet (SDS) and transport labels and EPA product labels.

When storing crop protection products, hazards most likely to be encountered are flammability, toxicity, corrosivity, reactivity or oxidizing agents. Seeds may be coated with crop protection products and may have similar hazards.

Proximity to Flood Plain

A warehouse storing crop protection products should be located in a place where the chance of flooding is relatively low. Ideally, the warehouse would be located in an area in which flooding has not occurred in the last 100 years, and products should be stored in warehouse areas free of water.

Proximity to Institutions

Ideally, a warehouse should not be located within half of a mile of a difficult to evacuate institution, such as a hospital, daycare center, or retirement home.

Easy Access for Emergency Responders

Access for emergency response vehicles should be available on two (2) sides of the warehouse. Ideally, the warehouse would not be located within one (1) mile of a major highway, but would have a road to the facility that could not be blocked. All areas of the warehouse should be easily accessible so that any emergency site can easily be reached by emergency responders.

Exposure from Adjacent Hazardous Activities

Other warehouses and factories nearby may be engaging in activities that pose a potential risk to the warehouse. At a minimum, the warehouse should be located 500 feet from a potential risk to a neighboring operation. Ideally, there will be no high-risk neighboring operations.

Construction of the Warehouse

Type of Structure

Single story warehouses are preferable to multiple story warehouses.

Materials

Ideally, the warehouse will be built from approved non-combustible or limited combustible materials (Type I fire resistive construction).

Windows

Ideally, there are no windows in a warehouse. If there are windows, they must be secured and placed as high as possible. However, the windows should not be placed so high that direct sunlight may penetrate the area, causing deterioration of plastic containers and labels of products.

Floor

Floors must be structurally sound, without cracks; it should be checked regularly to ensure that there are no cracks. They should be built from materials that can be easily cleaned, with a smooth finish that is impervious to liquids; this will improve the efficacy of spill clean-ups. Expansion joints must be filled and sealed with flexible joint sealers. Drains should not be uncontrolled. If they are present, they must be sealed, so as not to allow the uncontrolled release of spilled products or contaminated firefighting water. Floor drains are only allowed where they connect to an on-site containment system for accumulation of spills and fire-fighting water.

Walls
The warehouse should be constructed of non-combustible materials in order to restrict the spreading of a fire and to avoid collapse of the basic structure. Although steel is non-combustible, in order to be resistant to more than minor fires, load-bearing steel members will need to be clad in fire resistant material.

Ventilation
The warehouse should be well-ventilated to prevent dangerous concentrations of flammable vapor from building up. All vents should be designed or protected to prevent entry by birds or vermin. For good air circulation in warehouses, it is recommended that a clear space of at least 1 meter be maintained between the topmost products and the roof, as well as between the goods and the walls. Large buildings may require mechanical ventilation to achieve adequate air movement.

Warehouse Offices
Warehouse offices should be located in a separate building or separated from the warehouse by a minimum of 1 hour fire rated walls and doors. The offices should have at least one emergency exit to the outside (not through the warehouse) and proper ventilation.

Lighting
The level of lighting in the warehouse should be based on the ability to read written instructions without an additional light source. A warehouse must be safely lit, to prevent accidents. The lighting should be bright, through natural lighting or properly installed electrical lighting. The clearance between fixtures and storage must be in accordance with all applicable codes. Emergency lighting must be available in the event of power outage.

Electrical Equipment
Electrical equipment must be installed and maintained by an electrician, and should be in compliance with the National Electric Code and any local code.

Fork-lift trucks
Only authorized and properly trained drivers should be allowed to operate forklift trucks. Traffic flow should be properly regulated. Fork-lift trucks should travel with forks lowered and should not carry passengers. It is recommended that fire extinguishers are available on all fork-lift trucks.

Battery charging facilities for fork-lift trucks should be in an open area, away from the stored products. If the charging is done in an enclosed room, there should be a high-level vent for the release of the hydrogen generated, which is lighter than air. Due to the corrosive nature of many batteries, eye wash facilities should be located in close proximity to the charging area.

Fire Protection
Reliable Water Supply
Ideally, the warehouse should have two independent water sources, so that even if one stopped working, the other could be used in the event of fire. The warehouse should have 100% sprinkler coverage (wet, dry, and/or foam) with adequate sprinkler density, and the sprinkler should trigger an alert/alarm to the fire department. If the sprinkler system is not operational, fire protection may be compromised. Should such a situation occur, a sprinkler impairment procedure must be in place to notify the warehouse insurance carrier, local fire department, and alarm service provider. The sprinkler system should be tagged in a way that allows any observer to note that it is out of service.

Fire Alarm System
The fire alarm system must be installed with the approval of local authorities. It should include flow alarms and supervisory alarms, which should be connected to a supervised, approved central station or fire department. The system should be tested every other month.

Fire Extinguishers
Portable fire extinguishers should be located on each floor of the warehouse and should be accessible and conspicuously marked. The number and type of extinguishers should be determined with local safety authorities. Extinguishers should be inspected and maintained regularly.

Fire Walls
Internal division walls (fire walls) will help to control the spread of fire and should be constructed of fire resistant materials and have sufficient strength and physical stability so that they will not collapse during a fire. They should have as few openings as possible. Where cables and pipes are routed through a firewall, measures should be taken to ensure that fire cannot spread, e.g. by use of fire-resistant sand cups, etc. Doors in fire walls should be of an equivalent fire resistance to the wall itself. They should close automatically in case of fire, e.g. with a fusible link. Protect the doors from vehicle damage and ensure that stored goods do not obstruct their closure

Hazard Warning Placards (NFPA 704)
Hazard warning placards should be placed in locations on the outside of chemical storage warehouses that will not be easily obstructed (i.e. not on doors or on a wall that could be covered by an open door). The placards should represent the hazards of the chemicals stored in the warehouse.

Flammable Storage
Storage of highly flammable products should be in a separate building located at least 50 feet from other buildings. If it is within the warehouse, the storage building must be separated from general storage according to local requirements, preferably by 4-hour liquid tight walls, ramped at the openings with double 3-hour Class A doors. The storage of highly flammable products must be in compliance with the National Fire Protection Association ("NFPA") guidelines.

Inspections
Routine inspections are necessary to ensure that fire protection systems are working properly. These inspections should cover sprinkler systems, valves, fire pumps, extinguishers, fire doors, etc. Such inspections should take place at least monthly. They should be documented with service records and inspection reports available.

Environmental Impact

Proximity to Water
The warehouse should be situated such that spills and run-off from firefighting activities will present a minimal effect on the environment. Run-off should not easily migrate to an aquifer or other body of water. The warehouse should be at least 300 feet from a river or other body of water, and it should not pose a threat to any groundwater source of potable water. Soil type and depth of the aquifer in question should be considered.

Containment Capability
Means must be present to retain spills and firefighting water. The warehouse should have an enclosed floor area, with ramps at entry points. The walls can be sited on bunds, lined with impervious materials or a bund can be built within the warehouse structure. In large warehouses, a catchment basin and capability to shut drains to pump away firefighting effluent are preferred.

A containment system should have 100% containment with no gaps. The containment in a chemical storage area must have a minimum capacity to retain 100% of the volume of the largest liquid package plus anticipated fire extinguishing water. Calculation of capacity is determined by the area of containment in cubic feet multiplied by the gallons of liquid. ($Ft.^3$ x 7.48 = gallons).

Example: a containment that is 20 feet long, 20 feet wide, and 3 inches deep will have a volumetric capacity of 748 gallons. (20 * 20 * 0.25 * 7.48)

If the addition of such features would be too difficult, the expected volume of firefighting water should be reduced through the use of automatic alarms and extinguishing systems.

Security

Access

Access to the warehouse should be controlled. There should be a specific door entry, where every visitor must sign in or out with a receptionist or security guard. There should be pass procedures with visitor identification badges, restricted areas, and a separate drivers' waiting room. During off duty hours, access should be controlled by locking doors and windows, as well as adjoining offices. Keys should be located out of view, in the office or guardhouse. It is recommended that an electronic burglary detection system be put in place, that automatically notifies security resources.

Exterior Lighting

Exterior lighting is necessary to aid in nighttime patrols of the premises. At the very least, exterior lighting should provide coverage on all doors and windows. Ideally, the exterior lighting provides total coverage around the perimeter of the building and is maintained in good working order.

Fencing and Gates

Fences and gates can help to prevent security breaches. All fences and gates should be locked or guarded during off hours.

Substance Abuse Policy

Security problems may often be related to substance abuse. Testing for substance abuse can protect against product loss when done randomly or prior to employment. The warehouse should have a thorough substance abuse policy.

Routine Physical Inventories

Physical inventories should be taken to reduce confusion and help to identify problems early. They should be thorough, with special attention for visual inspection of every unit. Inventory should be taken at specific intervals. These inventories should be documented and include visual inspection of each unit.

Forklifts

Headlights

Headlights should be on during all operation of the equipment. Headlights must be in working order at all times.

Seat Belt

A seatbelt must be worn at all times while operating the forklift.

Horn

In the event of an accident, a horn in working order must be available to the driver at all times.

Fire Extinguisher

A fire extinguisher must be easily accessible to the forklift driver in the event of an emergency. The driver must also have appropriate training on fire extinguisher use.

Storage and Handling Practices

Housekeeping

Regular Cleaning

The warehouse must have clean floors, bathroom, etc. Ideally, the warehouse would be considered to be in "Good/Excellent" condition at all times.

Routine Walkthroughs

The manager or supervisor of the warehouse should make a routine walkthrough to check for housekeeping maintenance, safe and compatible product storage, and overall facility safety operations consistency. Walkthroughs should be documented and conducted on a weekly basis.

Aisle Space
Aisles at the warehouse should be clear at all times. All aisles should meet NFPA standards.

Rack Storage
Size
Pile sizes in the warehouse should never be overlarge. Pile sizes must meet all NFPA standards.

Height
Products should never be stacked to heights that appear to exceed the structural strength of the packaging (EVEN IF ACCEPTABLE PER NFPA).

Compatibility
Products that are stored together must be compatible; products which may cause harm if stored together should be stored separately. For instance, foodstuffs should not be stored with pesticides. Products that react violently with one another should also not be stored together, because, in the event of a spill, this could cause fire or other accidents.

Damaged Products
Make a plan for how to manage products that have been damaged. Salvage containers may be used to store and/or ship damaged product. Appropriate personnel and equipment can immediately over-pack if necessary, label and store damaged product in a safe place, and then recoup damaged product into new outer packaging. Written plans should be kept in the warehouse offices and appropriate training of personnel should be conducted regularly. Personnel, equipment, and supplies to perform the work must be present at all times.

Caged Flammable Aerosol Storage
Flammable aerosols should be stored in a flammable storage room or specially designed cabinets.

Vehicle Restraints
Wheel chocks are required by OSHA to restrain vehicles and to provide safety functions. Jack stands or similar equipment should be used to load drop trailers. Vehicle restraints must be used consistently.

Empty Pallet Storage
Empty pallet storage should not be prevalent, but if it is necessary, the pallets should be stored neatly away from traffic areas, in accordance with NFPA standards.

Floor Markings
Forklift travel aisles and pedestrian walkways should be separated and clearly delineated. Markings should be present on the floor of the warehouse to indicate different areas.

Temperature
Warehouse temperatures must be compliant with any temperature notes on product SDS sheets. Indirect heating is recommended, via steam or warm air. Heating systems should be stable and permanent. Air flow should not be directed toward storage, and storage should be a reasonable distance from the heat source. Temperature regulation devices should be easily accessible and visible in the warehouse.

Administration
Owner Involvement and Responsibilities
The warehouse owner and manager should be actively engaged in all warehouse operations. The management must possess the proper authority to efficiently and effectively manage warehouse operations. The manager is responsible for the safe handling of products, the occupational health and safety of the staff, the training of all staff and personnel, the maintenance of appropriate storage conditions,

protection of the environment, planning emergency procedures, and contacting authorities.

SARA

Warehouses must comply with the Superfund Amendments and Reauthorization Act, Title III, as well as local community Right-to-Know laws. This includes SARA 311 and 312. All necessary reports must be filed, and reports must be active with the local authority with jurisdiction.

Regulations

OSHA

The warehouse should comply with all Occupational Safety and Health Administration (OSHA) regulations. Copies of regulations should be kept in the warehouse.

DOT

The warehouse should comply with all Department of Transportation (DOT) regulations. Copies of regulations should be kept in the warehouse. DOT Hazmat registration, where applicable, must also be kept on hand.

EPA

The warehouse should comply with all Environmental Protection Agency (EPA) regulations. Copies of regulations should be kept in the warehouse. EPA establishment number should also be kept on hand.

Training

New Hire Training Program

The Employee Orientation or New Hire Training Program must document company policy, job- specific operations and information, safety procedures, code of conduct, chemical-specific training, and the emergency response procedures.

Right-to-Know Training

The Right-to-Know Training Program must document the written program, container labeling, SDS use, general training, and chemical-specific training. There should be annual refresher training.

Health and Safety Training

Health and Safety Training should provide training on the written program, personal hygiene practices, precautionary measures, safe work practices, housekeeping, accident prevention, emergency actions, and safety awareness. There should be regular refresher training, at least annually.

Spill Response Training

Spill Response Training should provide training to a level at which the facility is willing and able to respond. Training should be relevant to types of spills or releases that are most likely to occur in the potential responder’s normal work area. The training should teach types of control and Personal Protective Equipment (“PPE”) normally used in these situations. Evacuation procedures, drills, and decontamination procedures should be critical elements of the training. There should be regular refresher training, at least annually.

Respiratory Protection Program Training

Respiratory Protection Program Training should include PPE and PPE use, as well as documentation to prove that users are medically fit to make use of the equipment. There should be regular refresher training, at least annually.

Fire Extinguisher Training

Training should include use of portable fire extinguishers, types of fires, the checklist for extinguisher inspections (which should occur monthly), and servicing guidelines. There should be regular refresher training, at least annually.

Powered Industrial Truck Training (forklift)
Powered Industrial Truck Training should include safe use of equipment, hazard awareness, daily inspection and maintenance of the vehicle, vehicle training and operation, safe loading and stacking of the vehicle, and proper certification. There should be regular refresher training, at least annually.

DOT Hazmat Training Program
All employees handling DOT regulated hazardous materials must be trained. A DOT Hazmat Training Program must include training on safety, security, and hazardous material transportation. Refresher training is required at least once every three years, but any change in regulations must be immediately adopted.

Pre-Emergency Planning
Pre-Emergency Plan
The Pre-Emergency Plan is a written document, which addresses all elements of how emergencies will be managed at the warehouse. At a minimum, it should include fires, product spills, medical emergencies, anticipated natural disasters (tornado, earthquake, hurricane, winter weather, etc.) and any other type of disaster which may occur at the warehouse. The Pre-Emergency Plan must be documented and reviewed/updated at least annually. The warehouse Pre-Emergency Plan must be coordinated with local fire officials and other responding emergency services.

Emergency Contacts
For emergency purposes, a complete list of emergency contacts should be kept on hand at all times. This list should include the warehouse emergency coordinator, the fire department, the police, chemical suppliers, Local Emergency Planning Coordinator (LEPC), local, state, and federal agencies, hospital, contractors, and any other organization that may assist.

Evacuation
All staff and personnel must be familiar with the evacuation procedures, especially the evacuation routes. Ideally, a number of employees would also be trained to direct safe and orderly evacuation. An emergency evacuation drill should be performed at least annually. Training must be documented.

Emergency Coordinators
Emergency Coordinators are designated to aid in decision making, should an emergency occur. Ideally, enough Emergency Coordinators will be trained that a coordinator will always be available.

SDS Sheets
SDS sheets for all chemicals stored in the warehouse must be readily available to all warehouse employees, the fire department, and any other interested party.

Site Storage Plan
The location, general classification, and approximate quantity of all products in the warehouse should be on a written site plan. This site plan should be updated at least monthly.

PPE
Personal Protective Equipment (“PPE”) must be available to all qualified employees at all times. The equipment should be appropriate for relevant hazards and used in accordance with product labels. It should be used only by knowledgeable, trained employees. PPE should be periodically inspected and well-maintained. Employees should have easy and regular access to a written PPE policy.

Medical Emergency Preparation
Personnel should be trained, proper equipment (first-aid kits, safety showers, and eye-wash stations) should be available, and medical facilities should be relatively nearby, as well as easily accessible.

Formal Spill and Cleanup Procedure
There should be a written spill response procedure, with decontamination and disposal plans included.

Enough PPE and cleanup material should be available that various spill and containment situations could be handled. The spill and cleanup procedure must include a description of, and the location of, all spill control equipment and materials. These materials must be inspected for availability and condition on a monthly basis.

Appropriate Disposal Methods

Incineration

The disposal of Syngenta products or wastes containing Syngenta products must be approved in advance by Syngenta.

Checklist

The following checklist should be used to assess warehouse safety and proper product storage. It is not intended to be exhaustive, rather it is useful for identifying areas of improvement.

YES	NO	QUESTION
		What is the nominal storage capacity of the warehouse? (record answer in remarks)
		Is the warehouse situated away from sensitive locations e.g. school, hospital, highly populated area?
		If the warehouse is situated in a location that is prone to flooding, does the design take this into account?
		Is there clear, unobstructed access to the warehouse from two sides?
		Is the warehouse constructed of non-combustible materials?
		Is the floor surface impervious, with drainage that can be isolated from the public sewers?
		Is there sufficient light in the working area? If lights are provided, are they well positioned?
		If any office or amenity accommodation exists in the warehouse structure: • Is it adequately segregated from the storage area? • Does it have an exit other than through the warehouse?
		Is the warehouse well ventilated?
		Are all vents above bunding height? A bunding wall is a constructed retaining wall around storage where potentially polluting substances are handled, processed, or stored.
		Are sufficient emergency exits provided?
		Are the evacuation routes and exits clearly marked, with no obstructions? Emergency Lighting must be provided.
		Does the warehouse have a secure perimeter to prevent unauthorized access? Minimum: good condition lockable doors and closed windows, outside storage protected by fences
		What is the overall capacity of containment (including bunding)? (record in remarks) Is this sufficient to contain the expected volume of fire-fighting water?
		Is the site drainage system isolated from storm water run-off or can it be isolated when required?
		Are there clearly defined management responsibilities for: • Receipt and dispatch of goods? • Occupational health and safety? • Maintaining suitable storage conditions? • Security? • Protection of the environment? • Emergency procedure plans?
		Are there adequate procedures and supervision to ensure correct loading/unloading of vehicles and storage of product?
		Are Safety Data Sheets (SDS's) available for all chemical products?
		Is there an evaluation procedure (e.g. checking safety data sheets for chemical products) for new products before they are accepted into the warehouse?
		Does the warehouse have a security/safety control procedure to ensure that only authorized people can enter the warehouse?
		Are all appropriate staff adequately trained concerning: • Knowledge of product hazards? • Safe operating procedures? • Safe operation of forklifts? • Emergency procedures? • First aid?
		Is there a current plan showing storage locations for the different types of product? For chemical products, the plan should show the permitted hazards that can be stored in each location.
		Does the warehouse have a clear system for separating pesticide products from incompatible hazards, food, consumer products, and animal feed or foodstuff?
		If any product is stored outside the warehouse are conditions satisfactory regarding: • Security? • Weather protection? • Access for firefighting?
		If the warehouse uses block storage, are the stacks stable and meet the guidance for maximum dimensions, positioning?
		If the warehouse uses racks, are they stable, marked with maximum loads, bolted or secured to the floor or walls, and constructed of non- combustible material?
		Whichever storage system is used, is there sufficient space for forklift trucks to maneuver safely?
		Does the warehouse keep accurate stock records, showing the quantity and location of all goods?

YES	NO	QUESTION
		Are all non-routine maintenance (e.g. hot work, work at height) or construction activities authorized in writing?
		Are all forklift truck operators fully trained?
		Are forklift trucks charged or refueled outside of the main storage area?
		Are forklift trucks inspected daily with a documented inspection checklist?
		Are personnel issued with appropriate personal protective equipment?
		Is personal protective equipment checked regularly and kept in good condition?
		Are adequate first aid materials provided? Are staff familiar with their use?
		Are adequate eye wash and safety shower facilities available?
		Is there an agreed procedure for dealing with spillages?
		Is equipment for dealing with chemical spills available?
		Are wastes clearly identified and separated from products?
		Are wastes disposed of by approved/licensed contractors?
		Are records kept of all waste disposals?
		Is the warehouse fitted with a lightning conductor? A lightning conductor is a metal rod mounted on a structure and intended to protect the structure from a lightning strike.
		Is the prohibition of smoking rigidly enforced in the warehouse?
		Where flammable goods are stored and the warehouse is classified as a hazardous area, are “E” rated forklift trucks used?
		Is product stored at a safe distance from heat sources, light fittings, electrical equipment, and ancillary operations such as shrink wrapping?
		Is the fire suppression equipment adequate considering the size of the warehouse and the type of products stored?
		Are fire alarms automatically linked with the fire service? What is their response time? (enter in remarks)
		Is firefighting and fire detection equipment regularly inspected and maintained according to a defined schedule?
		Is there a written plan to deal with emergencies? Has this been agreed with the local fire service?
		Is there a fire plan showing positions of all fire-fighting equipment?
		Does the warehouse carry out and document regular fire drills (preferably in co-operation with the local fire service)?

_____

Warehouse Name and Address

_____ _____

Warehouse Owner/Manager Signature Date

_____ _____

Syngenta Representative Signature Date