




U.S. Department
of Transportation
**Pipeline and
Hazardous Materials
Safety Administration**



TRANSPORTING AGRICULTURAL PRODUCTS SAFELY

Hazardous Materials Regulations and Agricultural Operations



Disclaimer: The contents of this guide do not have the force and effect of law and are not meant to bind the public in any way. This guide is intended only to provide information to the public regarding existing requirements under the Hazardous Materials Regulations.

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A photograph of a tractor in a field at sunset. The tractor is in the foreground, partially obscured by a red semi-transparent banner. The sun is low on the horizon, creating a warm, golden glow. In the background, another piece of farm machinery is visible in the distance. The sky is filled with soft, wispy clouds.

SECTION 01

AGRICULTURAL OPERATIONS AND THE HMR

Many products that are commonly used in farming and agricultural operations are considered hazardous materials (hazmat) under the Hazardous Materials Regulations ([HMR; 49 CFR Parts 171 – 180](#)). If not packaged, transported, and disposed of properly, these materials can pose a risk to people and the environment. If you transport hazardous materials on a public road in the course of your business, HMR requirements may apply to you.

This brochure is meant to help you identify hazardous materials within your agricultural business, and to determine the HMR requirements that apply during transportation. In addition, this brochure explains the agricultural exceptions offered by the HMR, to help determine whether they are available to you.



IDENTIFYING HAZARDOUS MATERIALS IN AGRICULTURAL OPERATIONS

Hazardous materials pose a risk not only to the people transporting the materials, but also to the environment and other individuals who may come into contact with them, including farm workers. For this reason, it is important that farmers and agricultural workers know when they are dealing with hazmat. Following the proper procedures for transporting these materials, including proper packaging and hazard communication, can help minimize the risks and ensure the safety of everyone involved.

The HMR defines agricultural products as *hazardous materials whose end use directly supports the production of an agricultural commodity*—like a fertilizer, pesticide, soil amendment or fuel (see 49 CFR §171.8). Whether a material can be considered an agricultural product, and be provided certain regulatory exceptions, is determined by its hazard class. A hazard class or division is the classification used in the HMR to characterize the predominant risk that a hazmat poses. For the purposes of the HMR (49 CFR § 171.8), eligible agricultural products **only** include materials in Class 3, 8, or 9, or Division 2.1, 2.2, 5.1, or 6.1. Hazardous wastes and hazmat in other classes/divisions are not included in this definition, and so are not eligible for the associated exceptions.

The table below lists some commonly used agricultural products, and identifies their hazard classes in the HMR.

AGRICULTURAL PRODUCTS	HAZARD CLASS/DIVISION IN THE HMR*
Propane	2.1 (Flammable Gas)
Anhydrous Ammonia	2.2 (Inhalation Hazard)
Gasoline	3 (Flammable Liquid)
Diesel Fuel	3 (Combustible Liquid)
Ammonium nitrate	5.1 (Oxidizer)
Pesticide	6.1 (Poison)
Lithium-ion batteries in equipment	9 (Miscellaneous)

***NOTE:** These are examples and should not be used as the basis for classification. It is your responsibility to properly classify materials in accordance with the HMR (49 CFR §171.1)

NEW TO HAZMAT, AND UNSURE WHERE TO START?

Contact the Hazardous Materials Info Center at (1-800-467-4922) or via email at infocntr@dot.gov for answers to your questions. You can find the text of the HMR online, here: <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-C>.

WHAT REQUIREMENTS APPLY TO HAZMAT?

Fully regulated hazardous materials may be subject to the following requirements:

- Classification of material(s)
- Specification packaging
- Shipping papers
- Hazard communication, including marking, labeling, and placarding
- Emergency response information
- Formal training and retention of training records
- Security plans

Remember, “agricultural products” only includes materials in Class 3, 8, or 9, or Division 2.1, 2.2, 5.1, or 6.1!

It is your responsibility to transport hazmat in accordance with the HMR, including properly classifying and packaging the materials with all required hazard communication. These requirements may be dependent upon the quantity and hazard of the specific material (see the Hazardous Materials Table (HMT) in 49 CFR §172.101). If you're unsure if you have a hazardous material, contact the product's manufacturer to secure a Safety Data Sheet (SDS) and check section 14 for transportation information.

WHEN TO PLACARD AGRICULTURAL PRODUCTS

Placards are a form of hazard communication affixed on transport vehicles, bulk packagings, freight containers, unit load devices, and rail cars, meant to provide first-on-scene emergency responders with a quick way to assess the hazards associated with the material that is being transported. The use and appearance of placards is described in 49 CFR §172, Subpart F of the HMR.

Of materials considered agricultural products, only Division 6.1 Poisonous by Inhalation materials require placards for any quantity (see 49 CFR §172.504, Tables 1 & 2). Other agricultural products transported by motor vehicle **only require placarding** if they meet either of the following conditions:

- 454 kilograms/1001 pounds or more aggregate gross weight of *non-bulk* packages (that is, the combined gross weight of all hazmat plus packaging) (49 CFR §172.504(c)(1))
- In *bulk* packaging (49 CFR §171.8), which is defined as having:
 - A maximum capacity greater than 450 liters/119 gallons (liquids)
 - A maximum net mass greater than 400 kilograms/882 lbs (solids)
 - A water capacity greater than 454 kg/1000 pounds (gases)



PROPANE



ANHYDROUS
AMMONIA



GASOLINE



AMMONIUM
NITRATE



PESTICIDE

A wide-angle photograph of a lush green agricultural field, likely soybeans, stretching to the horizon. The sun is low on the horizon, creating a warm, golden glow and casting long, soft shadows. The sky is filled with scattered white and orange-tinted clouds. A dark green semi-transparent banner is positioned across the lower half of the image, containing the text.

SECTION 02

AGRICULTURAL EXCEPTIONS



ARE YOU CONSIDERED A FARMER?

The HMR defines a farmer as “a person engaged in the production or raising of crops, poultry, or livestock” (49 CFR §171.8)

The HMR includes exceptions specific to agricultural operations, which provide less stringent regulatory requirements if certain conditions are met. Remember: even if an exception applies, you are still transporting hazmat. It remains your responsibility to know if you are transporting hazmat, and to understand the applicable requirements.

TRANSPORTING BETWEEN FIELDS ON LOCAL ROADS (49 CFR §173.5(a))

Farmers transporting agricultural products (other than gases classified as Class 2) between fields of the same farm using local roads are exempt from the requirements of the HMR under the following conditions:

- You are a farmer who is an intrastate private motor carrier (i.e., you do not cross state lines)
- The movement of the agricultural product conforms to requirements of the State in which it is transported, and is specifically authorized by a State statute or regulation in effect before October 1, 1998.

TRANSPORTING CLASS 2 MATERIALS BETWEEN FIELDS ON LOCAL ROADS (49 CFR §173.5(a))

Farmers transporting Class 2 agricultural products, such as liquefied petroleum gas (LPG), between fields of the same farm using local roads are **only** eligible for exemption from the emergency response information (49 CFR §172.600) and training requirements (49 CFR §172.700) of the HMR. All other requirements apply.

You are eligible for this exception if:

- You are a farmer who is an intrastate private motor carrier (i.e., you do not cross state lines)
- The movement of the agricultural product conforms to requirements of the State in which it is transported, and is specifically authorized by a State statute or regulation in effect before October 1, 1998.

TRANSPORTING TO OR FROM A FARM (49 CFR §173.5(b))

Farmers transporting agricultural products to or from a farm (within 150 miles) are excepted from emergency response information (49 CFR §172.600), training requirements (49 CFR §172.700), and packaging requirements (49 CFR Part 173) as outlined in the HMR. You are eligible for this exception if:

- You are a farmer who is an intrastate private motor carrier
- The total amount of agricultural product transported on a single vehicle does not exceed:
 - 7,300 kg/16,094 lbs of ammonium nitrate fertilizer properly classed as Division 5.1, Packaging Group III, in a bulk packaging
 - 1900 L/502 gal for liquids or gases, or 2,300 kg/5,070 lbs for solids, of any other agricultural product.

- The movement and packaging of the agricultural product conforms to requirements of the State in which it is transported, and is authorized by a State statute or regulation in effect before October 1, 1998.
- Each person having any responsibility for transporting the agricultural product or preparing it for shipment has been instructed in the applicable HMR requirements.

It's important to note that if you are transporting a hazardous material that exceeds the limits outlined above, or if you are transporting a material that does not meet the criteria for exemption, you must comply with all HMR requirements for emergency response information, training, and packaging.

ADDITIONAL EXCEPTIONS RELATING TO AGRICULTURAL OPERATIONS

- **Formulated liquid agricultural products** may be transported by a private motor carrier between a final distribution point and an ultimate point of application or for loading aboard an airplane for aerial application. For packaging and additional requirements, see 49 CFR §173.5(c).
- **Moveable fuel storage tenders:** non-DOT specification cargo tank motor vehicles may be used to transport liquefied petroleum gas (including propane) as moveable fuel storage tender, if used exclusively for agricultural purposes when operated by a private carrier. For specific conditions of design and operation, see 49 CFR §173.5(d).
- **Liquid soil pesticide fumigants:** certain cargo tank motor vehicles and portable tanks may be used to transport liquid soil pesticide fumigants. Transportation must be exclusively for agricultural operations, by a private motor carrier between a bulk loading facility and a farm, not to exceed 150 miles between the loading facility and the farm. For details on permitted tanks, materials, storage, and additional restrictions, see 49 CFR §173.5(e).
- **Aircraft operations:** hazardous materials used for aerial seeding, dusting, spraying, fertilizing, crop improvement, or pest control that are loaded and carried in hoppers or tanks of aircraft are exempt from the HMR, if all applicable FAA operator requirements have been met. See 49 CFR §175.9(b)(1) for details.

Do you transport hazmat that doesn't meet the definition of an agricultural product?

You may be eligible for the Materials of Trade (MOTs) exception, if you transport small quantities in direct support of your business. See 49 CFR §173.6 for detailed requirements.

SECURITY PLAN EXCEPTION FOR FARMERS (49 CFR §172.800(c))

Security Plans are required for persons who offer for transportation in commerce or transport in commerce the hazardous materials as listed in 49 CFR §172.800 of the HMR. A security plan must include measures to address, at minimum, personnel security, unauthorized access, and *en route* transportation issues. The plan can be tailored to your operation.

If you are a farmer who generates less than \$500,000 annually in gross receipts from the sale of agricultural commodities or products, you are not required to have a security plan as long as your transportation activities are:

- Conducted by highway or rail
- In direct support of their farming operations
- Conducted within a 150-mile radius of those operations.

A photograph of a vast field of wheat under a dramatic sunset sky. The sun is low on the horizon, casting a warm orange glow over the scene. The wheat stalks are in the foreground, showing green leaves and developing grain heads. In the background, a line of trees is silhouetted against the bright sky.

SECTION 03

NURSE TANKS OF ANHYDROUS AMMONIA



A nurse tank is a cargo tank considered an implement of husbandry for the transportation of bulk anhydrous ammonia. By definition, they must be operated by a private carrier and used exclusively for agricultural purposes (49 CFR §173.315(m)(1)).

Under the HMR, nurse tanks are excepted from the Packaging Specification requirements of 49 CFR Part 178, if the tank:

- Has a minimum design pressure of 250 psig, meets the requirements of Section VIII of the American Society of Mechanical Engineers (ASME) Code, and is marked with a valid ASME data plate
- Is equipped with safety relief valves meeting the requirements of CGA Standard S-1.2
- Is painted white or aluminum
- Has a capacity of 3,000 gallons or less
- Is loaded to a filling density no greater than 56 percent
- Is securely mounted on a farm wagon
- Is in conformance with the requirements of 49 CFR Part 172 of the HMR, including placarding, except:
 - Shipping papers are not required, and
 - Markings and placards are not required on one end if valves, fittings, regulators or gauges prevent the markings and placard from being properly placed and visible.

Remember: you must meet all of these conditions for the exception to apply. Otherwise, the tank will be fully regulated under the HMR!

WANT TO MAKE SURE THAT YOUR NURSE TANK IS FULLY COMPLIANT?

COMMON VIOLATIONS INCLUDE:

Loose or missing bolts holding the tank to the wagon

Damaged or illegible data plates

Improper storage of delivery hoses, causing damage to the hose

Low air pressure or worn tires

Placards and markings in need of replacement

WHAT ABOUT FIELD TRUCK MOUNTED TANKS?

A non-DOT specification cargo tank securely mounted on a field truck is authorized as a nurse tank under certain conditions.

“Field truck” means a vehicle designed to withstand off-road driving on hilly terrain, so field trucks must meet certain requirements for suspension, low-end torque, braking systems, and tires (see 49 CFR §173.315(m)(3)(iv)). Field trucks must have low annual over-the-road mileage and be used exclusively for agricultural purposes.

In addition, the tank itself must (49 CFR §173.315(m)(3)):

- Conform to the general nurse tank requirements listed above, except for the requirement to be mounted on a farm wagon
- Be inspected and tested as specified for an MC 331 cargo tank in 180 Subpart E
- Be restricted to rural roads within 50 miles of the fertilizer distribution point where it is loaded.

WHAT IF THE ASME PLATE IS MISSING OR ILLEGIBLE?

Nurse tanks with missing or illegible ASME data plates may continue to be operated, provided they conform to the following requirements (49 CFR §173.315(m)(2)):

- The tank must undergo an external visual inspection and testing, specified in 49 CFR §180.407(d).
- The tank must be thickness tested in accordance with 49 CFR §180.407(i) of this subchapter, and meet minimum thicknesses spelled out in 49 CFR §173.315(m)(2)(ii). If the thickness test reading is less than that specified, the tank must be removed from service.
- The tank must be pressure tested in accordance with 49 CFR §180.407(g). The minimum test pressure is 375 psig, and pneumatic testing is not authorized.
- The tank must be inspected and tested by a person meeting the requirements of 49 CFR §180.409(d). Tests must be performed at least once every five years after the completion of the initial tests.
- Welded repairs are prohibited after the tank has successfully passed the visual, thickness, and pressure tests.
- After passing the visual, thickness, and pressure tests, the tank must be marked in accordance with 49 CFR §180.415(b), and permanently marked near the test and inspection markings with a unique owner's identification number. Letters and numbers must be at least 1/2 inch in height and width.
- The tank owner must maintain a copy of the test inspection report prepared by the inspector, containing the test results and meeting the requirements in 49 CFR §180.417(b). The report must be made available to a DOT representative upon request.





For additional information contact:
The Hazardous Materials Info Center

1-800-HMR-4922

(1-800-467-4922)

Email: infocntr@dot.gov

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