

# N-Serve<sup>®</sup> 24 Nitrification Inhibitor:

## *Supplement to Bulk Storage and Handling Guide*

This product-specific information supplements the Dow AgroSciences “Bulk Storage and Handling Guide”. Use these documents together to understand the requirements for a bulk storage facility of this product.

The Bulk Storage and Handling Guide is available at <http://www.dowagro.com/rc/steward/handling.htm>

<b>General Storage Comments</b>								
Due to flash point, N-Serve installations should meet requirements for Hazardous Zones, e.g. “explosion proof” or intrinsically safe components unless the local Authority Having Jurisdiction allows otherwise.								
<b>Product Density vs. Temperature</b>								
Temperature °F ( °C )	20 (-7)	30 (-1)	40 (4)	50 (10)	60 (16)	70 (21)	80 (27)	90 (32)
Density (lb./gal.)		8.31	8.26	8.21	8.15	8.10	8.05	7.99
See “Product Information & Safety” section of <i>Bulk Storage &amp; Handling Guide</i> for more information.								
<b>Flash Point, NFPA Rating, Storage Temperature, and Signal Word</b>								
Flash Point <sup>1</sup> °F (°C)	NFPA 704 Diamond Ratings			Min. Storage Temperature °F ( °C )		EPA Signal Word		
	Health	Flammability	Reactivity					
104 (40)	2	2	0	28 (-2) See note.		Warning		
See “Product Information & Safety” section of <i>Bulk Storage &amp; Handling Guide</i> for more information. May form crystals if stored below minimum storage temperature or solvent is allowed to evaporate. If crystals form, circulate tank contents until crystals are dissolved.								
Material / Product Compatibility	Rating	Comment						
Stainless Steel, Mild Steel,	OK	Air dryer required on bulk tanks to limit corrosion from moisture.						
Tin, Copper	OK							
Teflon, Nylon, Vellumoid Gasketing, Polyethylene (high-density and crosslinked)	OK							
Yellow Brass, Zinc	Caution	OK for most applications. Moderate corrosion in liquid phase. (0.02 mil-inches/yr)						
Aluminum	Caution	No corrosion with straight N-Serve, but N-Serve plus NH <sub>3</sub> may corrode aluminum.						
Plasticized PVC (Tygon)	Caution	Moderate swelling.						
Polyethylene (low-density), Polypropylene, Viton	Caution	OK for most applications. Moderate swelling.						
Buna N, Neoprene, EPDM, Silicone Red Rubber, Rigid PVC, Nitrile	No	DO NOT USE. Severe swelling or deterioration.						

<sup>1</sup> The flash point of a liquid is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air near the surface of the liquid or within the test vessel used.

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<b>Bulk Tank Material of Construction and Requirements</b>	
Material of Construction	Metal tanks must be welded construction, designed and built in accordance with good engineering standards. Tank must be built and marked to a recognized appropriate engineering standard, such as API or UL. As an alternative, the owner may provide a letter from a certified Professional Engineer stating that the tank meets requirements of use, and a letter from the state fire marshal or authority having jurisdiction approving use. Stainless steel is preferred. Do not use aluminum. Polyethylene bulk tanks are not allowed due to National Fire Protection Association Code 30 “Flammable and Combustible Liquids Code”.
Venting Requirements	<b>Self-closing ERV capability<sup>2</sup> and PVRV required</b> due to flash point. Indoor tanks must have ERV and PVRV piped to outside the building. <b>Air Dryer or Nitrogen Pad</b> required to avoid moist air in the tank to minimize corrosion.
Couplers	2” male Civacon Kamvalok <sup>3</sup> Adapter with cap, or 2” male PT Couplings Company Maxi-Dry <sup>4</sup> MD20A adaptor with cap. (The Kamvalok and Maxi-Dry systems can be mated to each other, therefore either may be used.)
Mixing Requirement	Wait until temperatures are above 40°F, then circulate until crystals are dissolved. The active ingredient is in solution and may crystallize below the minimum storage temperature. Circulation is not needed if no crystallization occurs, but use tanks with circulation capability.
Self-Closing Valve	A self-closing, fire-safe valve or other approved device must be attached next to the tank for any opening below liquid level. This is a fire-code requirement for indoor tanks, and a DAS requirement for outdoors.
<b>Refillable Container Handling</b>	
DOT	This product is regulated by US Department of Transportation for certain volumes and modes. See the Transportation section of the MSDS. Use only refillable containers listed in Dow AgroSciences Description of Acceptable Containers.
Material of Construction	Stainless steel is preferred. Plastic containers are allowed. Plastic IBCs 118.9 gals or greater need to be roto-molded, thick-walled, with fluorination recommended to reduce odor. Cage totes can only be used for short-term, temporary, onsite storage.
Mixing	Wait until temperatures are above 40°F, then circulate until crystals are dissolved. The active ingredient is in solution and may crystallize below the minimum storage temperature. Circulation is not necessary if no crystallization occurs.
Couplers	Dry break liquid connections are recommended in use for dispensing from refillable containers for N-Serve.

*NOTICE: The information, procedures, methods, and recommendations herein are presented in good faith and are believed to be accurate and reliable as of the publication date, but may well be incomplete and/or not applicable to all conditions or situations. No representation, guarantee, or warranty is made as to the accuracy, reliability, or completeness of said information, procedures, methods, and recommendations. Nor is any representation, guarantee, or warranty made that application or use of any of the same will avoid hazards, accidents, losses, damages, or injury of any kind to persons or property, or give desired results, or that the same will not infringe patents of Dow AgroSciences or others. Readers must satisfy themselves as to the suitability of said information, procedures, methods, and recommendations prior to use.*

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Always read and follow label directions.

N-Serve 24 is not registered for sale or use in all states.

Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state.



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<sup>2</sup> Size of the ERV should be determined using NFPA 30 Flammable and Combustible Liquids Code, or other appropriate code.

<sup>3</sup> Trademark of Civacon Corporation

<sup>4</sup> Trademark of PT Coupling Company, Inc.

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