

Inoculant handling guide

How to make the most of the inoculants for best performance

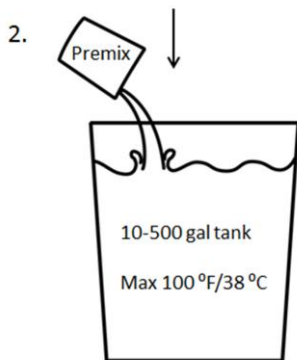
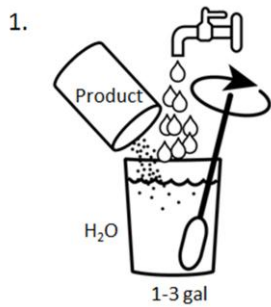


How to handle an inoculant through storage and distribution

- Inoculants in original, unopened packages should be stored under dry conditions (less than 75°F/24°C).
- For long term storage (greater than 12 months) the inoculants are ideally stored cool and dry (less than 41°F/5°C).
- Avoid continuous exposure to temperatures above 100°F/38°C for more than 1 week as this may compromise product quality.

Mixing instructions for water soluble inoculants

- Water-soluble inoculants are supplied as a concentrated powder that must be mixed with water before application.
- Inoculants should be premixed in a bucket or a mixing tank with at least 1 to 3 gallons of water per 1,000g of inoculant. Avoid mixing directly in applicator tank.
- Pour the inoculant powder slowly into the mixing water, agitate continuously for 2 to 3 minutes to dissolve the powder. Do not pour water to the inoculant canister. Adding the powder slowly reduces the risk of lumps.
- Warm water may speed up dispersion of the inoculant. However, do not use water warmer than is comfortable for the hand. **Be careful that the water does not heat up during application (Max temp 100°F/38°C).**
- Discard any unused inoculant solutions after 48 hours.
- Chlorinated drinking water up to 4ppm chlorine may be safely used with Chr Hansen inoculants. Water with Chlorine levels above 4ppm is not considered potable (drinkable for humans). Mix 1 cup (about 350g or ¾ pound) of milk or whey powder, or non-medicated calf milk replacer, with 5 gallons of water to neutralize higher levels of chlorine.



Application of the mixed inoculants

A uniform distribution of a bacterial silage inoculant on forage is important for maximum product performance. Many types of applicators are available for water-soluble products. Application of the inoculant solution during chopping will ensure a uniform inoculation before ensiling and will permit the use of very low volume applicators. The inoculant may also be sprayed or sprinkled on top of each wagon or truckload of forage prior to unloading, or after the forage is unloaded into trench or bunker silos prior to packing. However, this method is not recommended and should only be used as a last resort because bacteria may not be uniformly distributed in the forage.

Cleaning and sanitation

Ensure that the mixing equipment and applicator (tank, strainer, pumps, flow meters, lines and nozzles) are clean before use. Use of dirty equipment may encourage the development of biofilms creating slime that may plug the applicator. Applicators that plug usually have biofilms and need to be thoroughly cleaned.

- Fill applicators with cool or cold water when possible. This slows the activity and growth of spoilage organisms which form biofilms inside the applicator. Assure water temperature does not exceed 100°F/38°C during use.
- Sanitize applicators between cuttings or when an applicator will be stored for more than 48 hours. Before sanitizing any applicator it should be thoroughly rinsed of its previous contents. Follow label directions for the sanitizer that you use.

The Animal Health & Nutrition business unit of Chr. Hansen provides documented and cost-effective microbial feed solutions that help increase productivity in livestock farming. We represent core specialties in large-scale fermentation and lead the industry in the selection, development, production and distribution of beneficial live microbials. We also make our ioscience expertise and products available to usiness partners worldwide.

Operating in more than 30 countries, Chr. Hansen is the market leading producer of natural ingredients to the food, pharmaceutical, nutritional and agricultural industries. For further information please visit www.chr-hansen.com/animal-health



- The sanitizing solution should be circulated through the applicator spray lines, screens, and nozzles with clean water.
- A suitable sanitizer is household chlorine bleach (5.25% sodium hypochlorite) that may be used at a rate of 1 - 2 tablespoons (1/2 to 1 ounce) per gallon to effectively sanitize applicators. Ensure that the bleach will not react with previous content such as forage acid additives.
- Bleach is most effective in relatively clean equipment. To be effective the solution must have at least 20 minutes of contact time. Stronger solutions, up to 2 ounces of bleach per gallon of water, or longer contact times will remove heavier accumulations such as algae or mold. Applicators should not be stored for long periods of time with sanitizer solutions in them since it may weaken some plastics or corrode metals.
- Applicators must be double rinsed after sanitizing to remove all traces of sanitizing solution. Spray lines and nozzles must be flushed with clean water.

Dosage instructions

SiloSolve products containing 1,000g per canister each treating 500 tons of forage (2g/treated ton):

Dosage (oz/ton forage)	Volume of dosage tank (gallon)						
	10	20	25	50	100	200	500
	----- Number of canisters added to water in tank -----						
1.28	2.0	4.0					
2.56	1.0	2.0	2.5	5.0			
8.0			0.8	1.6	3.2	6.4	
16.0				0.8	1.6	3.2	8.0
32.0					0.8	1.6	4.0
64.0						0.8	2.0

Learn more about our silage inoculant products



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The formula for calculating the number af canisters needed for the various tank sizes and dosage rate:

$$\text{Number of canisters} = \frac{\text{A: Tank size (gal)} * (128 \text{ oz per gal}) / \text{B: (dosage (oz per ton forage))}}{\text{C: Canister size(g)}/ \text{D: application rate (g/treated ton forage)}}$$

Example:

	Amount
A: Tank size	10 gallons
B: Dosage rate	1.28 oz water per treated ton forage
C: Canister size	1,000 g
D: Application rate	2 g product per treated ton forage

$$\text{No. of canisters} = \frac{\text{A: 10 gallons} * 128 \text{ (oz/gal)}/\text{B: (1.28oz water per ton forage)}}{\text{C: 1,000(g)}/\text{D: 2 (g per treated ton forage)}} = 2 \text{ canisters}$$

Which means if you have a tank size of 10 gallons and your application rate is 1.28 oz water per treated ton forage, then you will need to add 2 canisters to the full tank.