



**ENGINEERED AGRICULTURAL
NUTRIENT MANAGEMENT SYSTEM**



OPTIMIZED AND SECURE AGRICULTURAL NUTRIENT MANAGEMENT

A byproduct of every dairy, beef, hog and poultry operation is animal waste. Its proper containment and management are two important issues facing today's producers. Secure storage means a protected environment. Optimized management means turning this byproduct into a valuable nutrient resource that can add to a bottom line.

A Slurrystore® System is a fully engineered storage and agitation system for optimized and secure agricultural nutrient management.

CONSISTENT NUTRIENT VALUE – AGITATION MAKES THE DIFFERENCE

The ability to agitate its full contents makes a Slurrystore System much different than lagoons or concrete pits. Neither of these storage options is better at achieving consistent nutrient balance than Slurrystore. Using its center agitation system, a Slurrystore evenly blends and homogenizes ag nutrients to maximize overall value for crop production needs. This full blending and homogenizing allows better plant nutrient management to help maximize yields while lowering fertilizer costs.

Research shows that on average about 30 tons of dairy cow manure—the amount produced by 1.5 mature cows consuming a balanced ration over a year's time—can provide the total nitrogen needed to grow 150 bushels of corn. Depending on market conditions, 1,000 gallons of manure can range in price from \$40 to \$60.

ENVIRONMENTALLY SOUND

A Slurrystore is an above-ground positive containment structure engineered to the highest standards. With greater environmental concern and stricter governmental regulations on the horizon, Slurrystore is clearly the best choice for environmentally sound manure management.

- A Slurrystore is designed and constructed using bolted glass-fused-to-steel panels for secure storage and high corrosion resistance.
- As above ground positive containment, a Slurrystore minimizes the danger of run-off, leaching and ground water contamination compared to earthen lagoons, concrete pits or other storage methods.
- Odor control also makes Slurrystore environmental friendly. Since a Slurrystore is above ground, a “chimney effect” is created, releasing any odors above ground level into higher air currents. When unagitated, it will often form a crust on the top layer sealing odors in while bottom filling reduces the amount of surface disturbance.





REGULATION READY

Slurrystore Systems are ready for existing and new regulations.

- NRCS approved
- EQIP qualified
- Designed for North American climate range
- Can be engineered for specific locations
- Solution for seasonal application restrictions

ODOR MANAGEMENT

Slurrystore Systems offer engineered solutions to help reduce odor problems compared to other storage methods.

- Less exposed surface area
- Above ground design creates “chimney effect” to lift odors above ground level
- Bottom filling reduces surface disturbance
- A roof or cover can be incorporated into design

SYSTEM FLEXIBILITY

A Slurrystore is designed to meet individual owner needs. Each system has flexibility to address specific situations that any farm might incur. These include:

- **Expandability** - A Slurrystore can grow with you to accommodate increases in future ag nutrient volume or new regulations.
- **Cover Options** - A roof or cover can be incorporated into a Slurrystore System’s design if needed.
- **Smaller Footprint** - A smaller footprint and the ability to build vertically minimize the effect of rainfall accumulation compared to the surface area of a lagoon. That means lower volume to haul and minimized dilution of nutrients.
- **Relocation** - A Slurrystore can be dismantled and moved or sold.
- **Digester Applications** - A Slurrystore may be used in anaerobic digester applications. CST Storage has been designing and manufacturing digester tanks and covers for over 30 years with applications around the world. CST works with process engineers to construct low maintenance structures that provide longevity and return on investment.

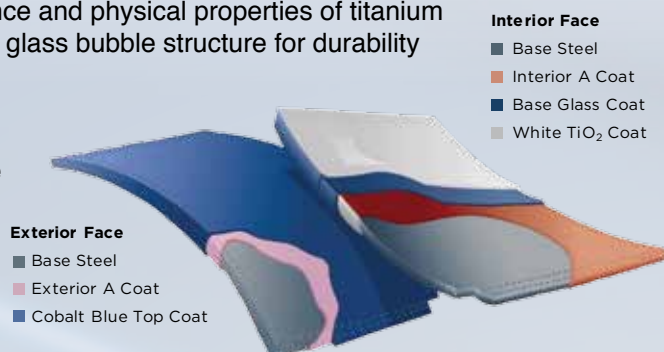


VITRIUM™ GLASS-FUSED-TO-STEEL – A MORE ROBUST OPTION THAN CLAY OR CONCRETE

Slurrystore Systems feature Vitrium™ glass-fused-to-steel, the premium coating in the storage tank market. It is a single, strong, integrated glass and steel material fused together at 1,500° F (815° C) in a controlled process furnace. Compare that to epoxy tanks in which the coating is baked on at 350°F (177° C).

Vitrium™ technology combines the outstanding chemical resistance and physical properties of titanium dioxide-enhanced (TiO₂) glass with a highly engineered, ultra-fine glass bubble structure for durability and flexibility.

The physical properties of Vitrium™ are specially suited for harsh liquid applications like manure. The hard, inert barrier on both the interior and exterior tank surfaces guards against corrosion. Impermeable to liquids and vapors, it controls undercutting caused by corrosion and offers excellent impact and abrasion resistance.



GLASS CHART

CATEGORY	SPECIFICATIONS	sheet color	White
Outside Sheet Color	Cobalt Blue		
Nominal Thickness	Interior: 10-18 mils, 260-460 microns Exterior: 7-15 mils, 180-380 microns		
Service Range	-40° to 140° (60° C) @2-11 pH-subject to verification, depending on specific products stored		
Abrasion Resistance	Taber-1.0 mg loss (CS-17, 1000g, 5,000 cycles)		
Elasticity	Young's Modulus 12 x 10 ⁶ psi		
Permeability	Impermeable to gases and liquids within normal operating temperature ranges		
Thermal Conductivity	20.4 BTU in/hr ft ² °F		
Cleanability	Smooth, inert, glossy, anti-stick		
Hardness	6.0 Mohs		
Adherence	Over 5,000 psi to base steel		
Impact Resistance	24 inch-lb.		
Corrosion Resistance ASTM B-117	Excellent, virtually unaffected by most waste waters, brines, sea water, sour crude, salt spray, organic and inorganic chemicals		

ENGINEERED PROTECTION

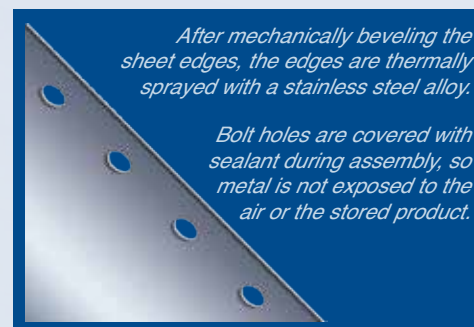
A Slurrystore System is engineered to provide additional protective options.



- The Cathodic Protection System uses a sacrificial anode to protect the reinforcing bars in the footing and floor from corrosion. It protects any exposed metal on the inside surface of the structure.
- An optional groundwater contaminant system can also be designed and installed.
- Every Slurrystore foundation includes a starter ring to provide easy installation and allow future disassembly for expansion or relocation.
- All Slurrystore designs include a PE stamp engineering submittal package.
- All Slurrystore glass-fused-to-steel panels are manufactured in an ISO 9001 facility.

EDGECOAT® PROTECTION

All Slurrystore panels feature CST Storage's proprietary Edgecoat® protection. Every full size panel edge is coated with a protective layer of stainless alloy to ensure sheet integrity.



SLURRYSTORE EVALUATION AND SELECTION

A Slurrystore System is specified and customized to meet your operational needs and storage requirements. This includes analysis of:

- Current storage requirements
 - Future expansion requirements
 - Available space to construct
 - Regulation compliance - state and local
- Site specific limitations and considerations
 - Funding protocol
 - Odor control
 - Filling and emptying requirements

SITE PREPARATION AND CONSTRUCTION

Above-ground containment structures, like Slurrystore Systems, typically require a smaller footprint than other typical storage options. That means less dirt to move with more of the surrounding environment undisturbed and available for other expansion needs or maximized productivity of limited space.

Authorized Slurrystore Dealers provide turnkey solutions from specification of the right Slurrystore System to fulfill your needs to its final construction and service. Slurrystore construction is done in strict accordance with the procedures and policies of CST Storage. All dealer construction crews are factory-trained to utilize the jack-build process and ensure the highest quality finished product.

CAPACITY CHARTS

Structure Capacity in Gallons (no Freeboard)						
Nominal Diameter (feet)	Structure Height					
	2 Ring 9.64 ft.	3 Ring 14.22 ft.	4 Ring 18.81 ft.	5 Ring 23.39 ft.	6 Ring 27.97 ft.	7 Ring 32.55 ft.
20	21,700	32,000	42,300	52,600	63,000	73,300
31	53,600	79,100	104,600	130,100	155,500	181,000
42	99,700	147,100	194,500	241,900	289,300	336,700
50	143,600	211,800	280,100	348,300	416,600	484,900
62	214,500	316,400	418,400	520,400	622,300	724,300
70	277,000	408,600	540,300	672,000	803,700	935,300
81	372,700	549,900	727,100	904,200	1,081,400	1,258,600
90	453,800	669,600	885,300	1,101,000	1,316,800	1,532,500
101	574,400	847,400	1,120,500	1,393,500	1,666,500	1,939,600
112	709,100	1,046,200	1,383,300	1,720,400	2,057,500	2,394,500
120	819,500	1,209,000	1,598,600	1,988,100	2,377,700	
131	979,000	1,444,400	1,909,809	2,375,200	2,840,600	
140	1,108,000	1,634,700	2,161,400	2,688,100		
151	1,292,400	1,906,800	2,521,100	3,135,400		
162	1,491,000	2,199,700	2,908,400	3,617,100		
171	1,649,200	2,433,100	3,217,100			
190	2,049,500	3,023,600	3,997,800			
201	2,297,700	3,389,800	4,482,000			
204	2,361,900	3,484,600	4,607,300			
				US Gallons		
				See dealer for full range of size options		

Structure Capacity in Cubic Meters (no Freeboard)						
Nominal Diameter (mm)	Structure Height					
	2 Ring 2,930	3 Ring 4,330	4 Ring 5,730	5 Ring 7,120	6 Ring 8,520	7 Ring 9,920
5,960	80	120	160	190	230	270
9,370	200	290	390	490	580	680
12,790	370	550	730	910	1,090	1,270
15,340	540	800	1,060	1,310	1,570	1,830
18,750	810	1,190	1,580	1,970	2,350	2,740
21,310	1,040	1,540	2,040	2,540	3,040	3,540
24,720	1,410	2,080	2,750	3,420	4,090	4,760
27,280	1,710	2,530	3,350	4,160	4,980	5,800
30,690	2,170	3,200	4,240	5,270	6,310	7,340
34,100	2,680	3,960	5,230	6,510	7,790	9,060
36,660	3,100	4,570	6,050	7,520	9,000	
40,070	3,700	5,470	7,230	8,990	10,750	
42,630	4,190	6,190	8,180	10,180		
46,040	4,890	7,220	9,540	11,870		
49,450	5,640	8,330	11,010	13,690		
52,010	6,240	9,210	12,180			
57,980	7,760	11,450	15,140			
61,390	8,700	12,830	16,970			
62,240	8,940	13,190	17,440			
				Metric		
				See dealer for full range of size options		



PUMPS AND NOZZLES

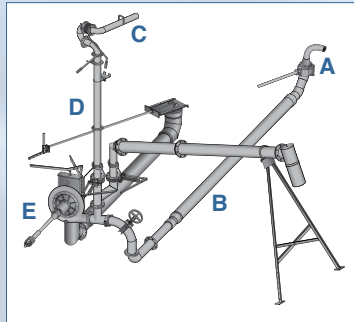
Slurrystore pump and nozzle options make the tough job of manure agitation easier, faster and safer. They are designed for efficient operation, quick adjustment and minimum maintenance.

- Achieve powerful nutrient stream
- Adjustment capabilities
- Convenience
- Consistent mixing

SLURRYSTORE AGITATION SYSTEM

Agitation components include:

- A. Center agitator nozzle
- B. Center agitation piping
- C. Deluxe over-the-top nozzle
- D. Over-the-top piping
- E. Side mount pump



Slurrystore 2400 Pump with Deluxe Over-the-Top Agitation Nozzle

PUMP OPTIONS

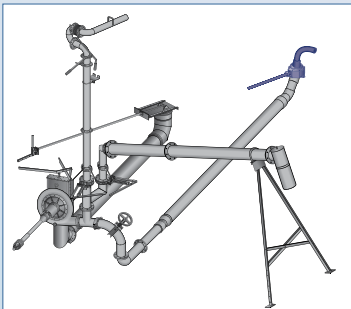
Slurrystore Systems offer pump options that are designed and engineered to meet the agitation needs of each structure. Pump features include:

- Cast iron construction
- 2000 to 4000 GPM (gal./min.)
- 90 to 194 feet of head pressure
- Ability to agitate up to 140x23 Slurrystore (2,688k gal.) with one pump

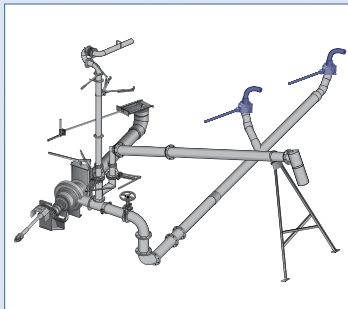


Slurrystore 1400 Pump

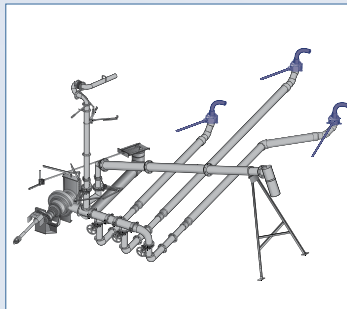
NOZZLE OPTIONS



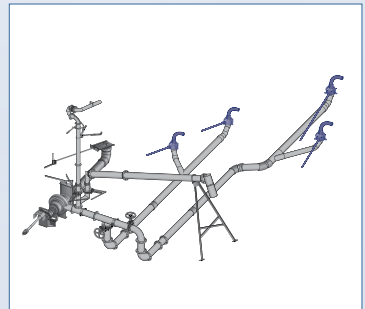
Single nozzle – up to 120' in diameter



Double nozzle – up to 151' in diameter



Triple nozzle - up to 179' in diameter



Quad nozzle – up to 204' in diameter

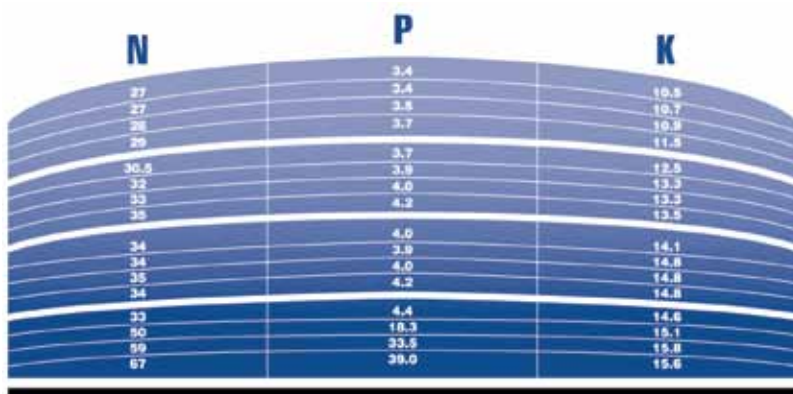
AGITATION AND NUTRIENT BALANCE

Nutrient consistency is important in determining overall nutrient value when land-applied for crop production. Used as a commercial fertilizer replacement or supplement, a consistent mix of ag nutrients eliminates guesswork and over- or under-application. The ultimate benefit is fertilizer savings and increased productivity. The graphic below illustrates nutrient concentration before and after agitation.



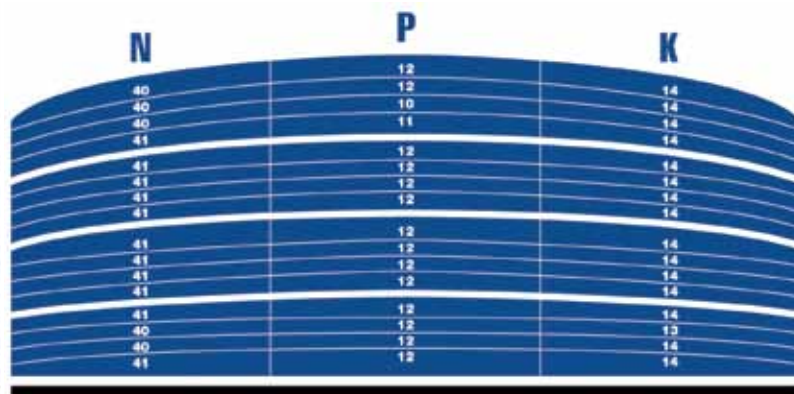
BEFORE AGITATION

Nutrient Concentration is Inconsistent



AFTER AGITATION

Nutrient Concentration is Homogeneous



PROPER AGITATION = MAXIMUM NUTRIENT CONSISTENCY = SAVINGS

RESEARCH PROVEN

A 2011 study by Purdue University examined the solids and nutrient retention in a Slurrystore and evaluated the ability of its agitation system to mix the manure prior to removal. The study concluded that “The tank agitation system adequately mixed the manure in the tank during the cleanout process, resulting in little variation in manure nutrient concentrations during two separate cleanout periods.”*

*T.D. Nennich, et al, Purdue University, 2011

STORAGE PRO™ ECONOMIC ANALYSIS

The Storage Pro™ manure management planning program uses a producer's unique costs and inputs to assign realistic values to livestock manure. The program then creates a thorough economic analysis for storing and managing these nutrients using a Slurrystore System. Contact your local Authorized Slurrystore Dealer for personalized analysis for your operation and identify the value and savings.

AGITATION SELECTION

	HOG APPLICATIONS	DAIRY APPLICATIONS
Model 1400 Side Mount With Single Nozzle System	Up to 101 Foot Diameter	Up to 120 Foot Diameter
High Flow Model 2400 Pump With 2 Nozzle System	101 to 140 Foot Diameter	120 to 151 Foot Diameter
2 High Flow Model 2400 Pump Systems (4 Nozzles Total)	Up to 204 Foot Diameter	Up to 204 Foot Diameter

NOW'S THE TIME FOR SLURRYSTORE

When it comes to agricultural nutrient storage, you get the highest engineered quality, best service, longest product life and greatest value from Slurrystore Systems. Producers are getting more than just storage, they are investing in a nutrient tank. For today's dairy and livestock operations, there simply is no better storage choice than Slurrystore for long term storage, environmental stewardship and nutrient value. Contact your Authorized Slurrystore Dealer for more information or an on-farm analysis and quote.

ABOUT CST STORAGE

CST Storage is the unrivaled global leader in storage solutions and offers the only line of complete tank coatings. CST brings the most experienced team of engineers, construction and field service personnel through our network of Authorized Dealers to deliver successful installation from start to finish. With a legacy of almost 120 years and over 250,000 tanks in 125 countries, no other company can match CST's design, manufacturing and construction experience.



www.slurrystore.com

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