

CAPACITY CHART LIQUID STORAGE

No. of Ring				1	2	3	4	5	6	7							
Nominal Height Ft.				5	10	15	20	25	30	35							
Actual Ht. Ft. Ins.				4 - 3	8 - 10	13 - 5	18 - 0	22 - 7	27 - 2	31 - 9							
Nominal Ht. M				1.293	2.690	4.087	5.483	6.880	8.277	9.673							
Diameter				C A P A C I T Y													
Nom	SPR	Actual ft. Ins.	Actual M	Galls	M³	Galls	M³	Galls	M³	Galls	M³	Galls	M³	Galls	M³	Galls	M³
11	4	11-2	3.416	2607	11.85	5241	24.64	8236	37.44	11051	50.23	13867	63.03	16683	75.83	19494	88.61
14	5	14-0	4.270	4068	18.49	8463	38.47	12857	58.44	17250	78.41	21644	98.38	25960	118	30360	138
17	6	16-10	5.124	5861	26.64	12190	55.41	18522	84.19	24860	113	31240	142	37400	170	43780	199
20	7	19-7	5.976	7979	36.27	16599	75.45	25300	115	33880	154	42460	193	51040	232	59620	271
22	8	22-5	6.830	10421	47.37	21683	98.56	33000	150	44220	201	55440	252	66660	303	77880	354
25	9	25-2	7.684	13191	59.95	27500	125	41580	189	55880	254	70180	319	84480	384	98560	448
28	10	28-0	8.538	16284	74.02	33880	154	51480	234	69080	314	86680	394	104280	474	121880	554
31	11	30-9	9.392	19701	89.55	40920	186	62260	283	83600	380	104720	476	126060	573	147400	670
34	12	33-7	10.246	23320	106	48620	221	74140	337	99220	451	124740	567	149820	681	175340	797
36	13	36-5	11.100	27500	125	57200	260	86900	395	116600	530	146520	666	176220	801	205920	936
39	14	39-2	11.954	31900	145	65440	302	100760	458	135300	615	169840	772	204160	928	238700	1085
42	15	42-0	12.808	36520	166	76120	346	115720	526	155320	706	194700	885	234300	1065	273900	1245
45	16	44-10	13.662	41580	189	86680	394	131780	599	176880	804	221760	1008	266860	1213	311960	1418
48	17	47-7	14.516	47080	214	97900	445	148720	676	199540	907	250360	1138	301180	1369	352000	1600
50	18	50-4	15.370	52800	240	109560	498	166540	757	223520	1016	280500	1275	337480	1534		
53	19	53-2	16.224	58740	267	122320	556	185680	844	249260	1133	312840	1422	376200	1710		
56	20	56-0	17.078	65340	297	135740	617	206360	938	276760	1258	347160	1578				
59	21	58-9	17.930	71720	326	149160	678	226820	1031	304260	1383	381700	1735				
62	22	61-7	18.784	78760	358	163680	744	248820	1131	333740	1517	418880	1904				
64	23	64-5	19.638	86020	391	179080	814	272140	1237	364980	1659	458040	2082				
67	24	67-2	20.492	93500	425	194700	885	295900	1345	396880	1804	498080	2264				
70	25	70-0	21.346	101640	462	211640	962	321460	1462	431420	1961	541200	2460				
73	26	72-9	22.200	109780	499	228360	1038	347160	1578	465740	2117	584100	2655				
76	27	75-7	23.054	118580	539	246840	1122	374880	1704	502920	2286	630960	2868				
78	28	78-4	23.908	127380	579	265100	1205	402820	1831	540320	2456	677820	3081				
81	29	81-2	24.760	136840	622	284460	1293	432300	1965	579920	2636	727540	3307				
84	30	84-0	25.616	146520	666	304700	1385	462880	2104	620840	2822	779020	3541				
87	31	86-9	26.470	156200	710	324940	1477	493680	2244	662200	3010	830940	3777				
90	32	89-7	27.324	166540	757	346720	1576	526680	2394	706420	3211	886600	4030				
92	33	92-4	28.178	176880	804	368060	1673	559240	2542	750200	3410	941160	4278				
95	34	95-2	29.032	188100	855	391160	1778	594440	2702	797280	3624	1000340	4547				
98	35	98-0	29.884	199320	906	414700	1885	630080	2864	845240	3842	1060620	4821				
101	36	100-9	30.738	210760	958	438460	1993	666160	3028	893420	4061	1121120	5096				
104	37	103-7	31.592	222640	1012	463320	2106	704000	3200	944240	4292	1184700	5385				
106	38	106-4	32.446	234740	1067	488180	2219	741840	3372	995060	4523	1248500	5675				
109	39	109-2	33.300	247280	1124	514580	2339	781660	3553	1048520	4766	1315820	5981				
112	40	112-0	34.154	260550	1184	541860	2465	823460	3743	1104840	5022	1326820	6031				
115	41	114-10	35.008	273680	1244	569360	2588	865040	3932	1160500	5275	1456180	6619				

- Capacities given on full to brim basis.
- For upstanding beam method - Add 200mm to tank height.
- Provide 300mm freeboard for effective water levels.
- Other sizes tanks are subject to special design.
- For ground tank - Provide 300mm freeboard for effective water level.

REFERENCE NOTE
 The PERMASTORE® model consists of diameter followed by height.
 ref. eg: Model 5620
 Tank Internal Diameter - 17.078m
 Tank Height - 5.483m
 Gross Capacity - 1258m³

PROVEN STORAGE

Water	Treatment
Drinking	Anaerobic Digester
Irrigation	Annular Tank System
Fish Farming	Sedimentation Tank
Fire Sprinkler	Sludge and Slurries

THE ADVANTAGES OF PERMASTORE BOLTED TANK SYSTEMS

- Maintenance**
The glass-fused -to-steel coating virtually eliminates coating maintenance internally and externally.
- Installation**
Trained and dedicated in-house teams with proper equipment can speedily erect most sizes of PERMASTORE®.
- Expandability**
With only minimal design-planning the PERMASTORE® tank can be extended at a future date without dismantling the existing tank.
- Relocation**
The bolt-together feature permits relocation that protects the initial investment.
- Warranty/Service**
We provide inspection service within warranty period of 10 years.



PERMASTORE®
TANKS & SILOS

More than 30 years in Malaysia . With over 50 years history.
 Your Reliable Water/ Wastewater/ Industrial Storage Solution
RWT ENTERPRISE SDN BHD.

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worldwide
 epoxy containment
 solutions

An epoxy product that will look better for longer!

The Company

Permastore has joined forces with AkzoNobel who is a leading global producer of paints and coatings. The result is an innovative, technologically advanced Fusion Bonded Epoxy product, FUSION® V1100, for modular, bolted containment systems. The high-tech RESICOAT® R4-ES used on the internal surface combined with the ultra durable INTERPON® D2525 on the external surface sets the new benchmark within its sector.

Following extensive research, with shared know-how and combined with our considerable experience in Glass-Fused-to-Steel solutions coating technology, we have developed FUSION® V1100 to be an exceptional Fusion Bonded Epoxy coating system, second only in performance to PERMASTORE® Glass-Fused-to-Steel solutions. Permastore use high quality grades of sheet steel which meet or exceed the requirements of relevant tank design standards and applicable International Standards e.g. AWWA D103-09, EN 10025, EN 10149 and ASTM A1011.

With the engineering expertise and experience gained from over 50 years in the global tank and silo industry, you can be assured that the FUSION® V1100 product offers the best quality, high performance Fusion Bonded Epoxy product which is installed with the precision and ease our customers have come to expect and value from the current PERMASTORE® product. Exporting to over 110 countries and supplying in excess of 300,000 durable and cost effectively engineered structures worldwide, Permastore has the knowledge and experience to provide the best possible solution for your specific application. The combination of AkzoNobel's market leading Fusion Bonded Epoxy coating formulation and Permastore's unmatched factory application process has led to the innovative FUSION® V1100 Bonded Epoxy coating.

Permastore operates through an extensive Global Distributor Network, which gives customers the reassurance of highly experienced, trained crews who provide rapid and high quality completion on-site. In addition, having experienced local sales personnel on the ground who speak the language, know the market area and specification requirements and have the necessary expertise to liaise with end customers provides a value-added service to customers.

Designed to be easy and cost effective to container ship anywhere in the world, modular bolted FUSION® V1100 Bonded Epoxy Tanks are an ideal solution in remote locations.

Applications

The proprietary FUSION® V1100 Epoxy coating leads the market within its sector and is suitable for the storage, processing and general containment of a range of liquids. Factory-applied coatings eliminate weather delays typical of site-applied coatings making FUSION® V1100 undoubtedly your best choice to suit your specific application.

The Quality

FUSION® V1100 gives you the assurance and dedication to the highest quality associated with the PERMASTORE® brand. The internal contact surface of every panel is subject to 100% factory inspection and testing at 1100v showing our commitment to zero discontinuities (defect free at test voltage).

The external surface of the panel is inspected using a colorimeter test and the colour checked against standard limits. Panels with a colour outside of these limits will be rejected.

The Coating Performance

FUSION® V1100 is the superior, optimum Fusion Bonded Epoxy coating for your containment solution and provides the following features:

Internal Coating – RESICOAT® R4-ES


- ▶▶ One of the most durable epoxy coatings when compared to other available epoxy products in the market place.
- ▶▶ High Voltage Testing carried out on every sheet with zero discontinuities (defect free at test voltage).
- ▶▶ The coating holds approval for drinking water regulations such as NSF/ANSI 61 and BS 6920 as well as other regulations in numerous other countries.
- ▶▶ Optimum control of the external coating overspray keeps the internal coating compliant with drinking water regulations.
- ▶▶ Coating undergoes and has to pass many different types of tests in order to ensure high performance and compliance with our publicly available Quality Standard.
- ▶▶ An electrostatically factory-applied powder coating is applied to the internal surface which provides a high quality and consistent uniform finish.
- ▶▶ The formulation complies with appropriate controls on substances, including European REACH Regulations, which allows the coating to attain the highest global credentials for safety and environmental performance.

External Coating – INTERPON® D2525

- ▶▶ A combination of an epoxy primer and an ultra durable polyester top coat.
- ▶▶ A universal testing procedure known as Florida outdoor exposure testing is used to test the external polyester surface ensuring UV resistance as well as colour and gloss durability and consistency in the most intense sunlight conditions. Florida is the internationally recognised and realistic benchmark location for outdoor exposure testing due to its subtropical weathering exposure.
- ▶▶ Coating has passed rigorous testing and holds a number of independent approvals. In accordance with ISO 2810, the coating exceeds Qualicoat Class 2 requirements after 3 years Florida outdoor exposure testing and meets AAMA 2604-5 requirements after 5 years Florida outdoor exposure testing.
- ▶▶ Coating undergoes and has to pass many different types of tests in order to ensure high performance and compliance with our publicly available Quality Standard.
- ▶▶ The formulation complies with appropriate controls on substances, including European REACH Regulations, which allows the coating to attain the highest global credentials for safety and environmental performance.

Technical Information

Internal Coating - RESICOAT® R4-ES

Application	Test	RESICOAT® R4-ES	Internal Colour
Dry Film Thickness	Non-Destructive Test	6 - 10 mils / 150 - 250 microns	
Hot water immersion 90 days, 70°C	AWWA C550-05	Pass	
Adhesion after 7 days, 90°C water	ISO 4624	≥16MPa	
Corrosion Resistance	Salt Spray ISO 9227 / ASTM B117	Meets or exceeds industry norms	
Impact Resistance	ASTM G14 3.2mm (1/8 in) steel plate	> 18 Joule	
pH range	-	3 - 13*	
Abrasion Resistance	Abrasion wheel ASTM 4060	CS-17, 1000g, 1000 cycles <40mg	
Hardness	ISO 15184 / ASTM D3363	2H	
Chemical Immersion	50% NaOH, 50% H ₂ SO ₄	2 years no change	
Holiday test	1100v every panel	Discontinuity free (zero defects at test voltage)	

External Coating - INTERPON® D2525

Application	Test	INTERPON® D2525
Dry Film Thickness	Non-Destructive Test	6 - 9 mils / 150 - 230 microns (combination of an epoxy primer and polyester topcoat)
UV Resistance	Florida outdoor exposure testing	5 years
Colour Stability	Florida outdoor exposure testing	5 years
Impact Resistance	ISO 6272	Pass Qualicoat Class 2 Requirements

Standard External Colours. Other colours are available upon request

Note: The epoxy specification is offered as a cost effective solution to be considered by the process designer for specific applications. In circumstances where commercial factors or ongoing process requirements dictate that future access for inspection and maintenance will be impractical, the process designer should consult with the end user and consider whether cathodic protection should be specified.

The Process

