

TECHNICAL DATA SHEET

DESCRIPTION

All Weather J51 AW is a two component 100%, moisture tolerant, all weather epoxy acrylate hybrid anchoring gel that meets the ASTM C881 specification requirements. All Weather J51 AW is formulated to set up at room temperatures and down to temperatures of -15°F (-26°C).

USE

All Weather J51 AW is ideal for anchoring dowels, bolts, threaded rod, pins and reinforcement steel in concrete. All Weather J51 AW can also be used in cooler and freezer applications or anywhere low temperature installations are required.

FEATURES

- All weather and temperature installation
- Ideal for cold weather installations
- Moisture tolerant
- High structural strength adhesive
- Rapid cure and gel time at room temperatures
- Styrene free
- VOC compliant- 100% solids
- Non-sag gel consistency for horizontal and vertical installations
- Easy dispensing from dual cartridges
- High bond and adhesion

PROPERTIES

Meets USDA requirements for use in incidental food contact.

V.O.C. compliant

Complies with ASTM C881 and AASHTO M235 Types I, II, IV, V, classes A, B & C. Grade 3 (with exception of gel time)

Passed- ASTM E1512 (Sec.7.1 & 7.5)
Elevated temperature creep test

Mix Ratio (A to B by volume) - 10:1

Gel time 60 GM MASS @ 73°F (23°C) - 7-8 Min

ASTM D695 - Compressive Strength
Greater than 10,000 PSI (68.95 MPa)

ASTM D695 - Compressive Modulus: 270,000 PSI (1861.6 MPa)

ASTM D570 - Water Absorption 0.06%

ASTM D648 – Heat Deflection temp 140°F (60 C)

ASTM C882 – Bond Strength
2-days: 2,800 PSI (19.31 MPa)
14-days 3,200 PSI (22.06 MPa)

ASTM D638 – Elongation at break 1.3%

Tension Loads

Ultimate Tension Loads for Threaded Rod

Anchor Diameter	Hole Diameter	Embed Depth	2,300 psi (15.8 MPa) Concrete	4,300 psi (29.6 Mpa) Concrete
3/8" (1 cm)	7/16" (1.2 cm)	1-11/16" (4.3 cm)	3,520 lbs (15.6 kN)	5,330 lbs (23.7 kN)
3/8" (1 cm)	7/16" (1.2 cm)	3-3/8" (8.6 cm)	10,685 lbs (47.5 kN)	10,785 lbs (48.0 kN)
1/2" (1.3 cm)	9/16" (1.4 cm)	2-1/4" (5.7 cm)	6,435 lbs (28.6 kN)	9,780 lbs (43.5 kN)
1/2" (1.3 cm)	9/16" (1.4 cm)	4-1/2" (11.4 cm)	15,405 lbs (68.5 kN)	19,985 lbs (88.4 kN)
5/8" (1.6 cm)	3/4" (1.9 cm)	2-13/16" (7.1 cm)	10,600 lbs (47.1 kN)	17,315 lbs (77.0 kN)
5/8" (1.6 cm)	3/4" (1.9 cm)	5-5/8" (14.3 cm)	29,465 lbs (131.1 kN)	32,730 lbs (145.6 kN)
3/4" (1.9 cm)	7/8" (2.2 cm)	3-3/8" (8.6 cm)	15,780 lbs (70.2 kN)	24,285 lbs (108.0 kN)
3/4" (1.9 cm)	7/8" (2.2 cm)	6-3/4" (17.1 cm)	28,995 lbs (129.0 kN)	43,460 lbs (193.3 kN)
7/8" (2.2 cm)	1" (2.5 cm)	3-15/16" (10.0 cm)	17,425 lbs (77.5 kN)	31,795 lbs (141.4 kN)
7/8" (2.2 cm)	1" (2.5 cm)	7-7/8" (20.0 cm)	40,235 lbs (179.0 kN)	56,865 lbs (252.9 kN)
1" (2.5 cm)	1-1/8" (2.8 cm)	4-1/2" (11.4 cm)	22,980 lbs (102.2 kN)	35,400 lbs (157.5 kN)
1" (2.5 cm)	1-1/8" (2.8 cm)	9" (22.9 cm)	54,715 lbs (243.4 kN)	54,945 lbs (244.4 kN)
1-1/4" (3.2 cm)	1-3/8" (3.5 cm)	5-5/8" (14.3 cm)	33,220 lbs (147.8 kN)	54,230 lbs (241.2 kN)
1-1/4" (3.2 cm)	1-3/8" (3.5 cm)	11-1/4" (28.6 cm)	74,125 lbs (329.7 kN)	80,180 lbs (356.6 kN)

VOC

All Weather J51 AW VOC 0 g/L . Compliant with all Canadian and U.S. VOC regulations.

Estimating Guide Rebar

Bolt Diameter Rebar size	Hole Diameter	Hole Depth	Anchors per 28 oz Cartridge Rebar/Dowel
3/8"-#3 (1 cm)	1/2" (1.3 cm)	4" (10.2 cm)	104
1/2"-#4 (1.3 cm)	5/8" (1.6 cm)	5" (12.7 cm)	65
5/8"-#5 (1.6 cm)	3/4" (1.9 cm)	6" (15.2 cm)	45
3/4"-#6 (1.9 cm)	7/8" (2.2 cm)	7" (17.8 cm)	31
7/8"-#7 (2.2 cm)	1" (2.5 cm)	8" (20.3 cm)	23
1"-#8 (2.5 cm)	1-1/8" (2.8 cm)	9" (22.9 cm)	18
1-1/4"-#10 (3.2 cm)	1-1/2" (3.8 cm)	9" (22.9 cm)	9

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Estimating Guide

Threaded Rod			
Bolt Diameter Rebar Size	Hole Diameter	Hole Depth	Anchors per 28 oz Cartridge Rebar/Dowel
3/8"-#3 (1 cm)	7/16" (1.2 cm)	4" (10.2 cm)	122
1/2"-#4 (1.3 cm)	9/16" (1.4 cm)	5" (12.7 cm)	70
5/8"-#5 (1.6 cm)	3/4" (1.9 cm)	6" (15.2 cm)	31
3/4"-#6 (1.9 cm)	7/8" (2.2 cm)	7" (17.8 cm)	20
7/8"-#7 (2.2 cm)	1" (2.5 cm)	8" (20.3 cm)	15
1"-#8 (2.5 cm)	1-1/8" (2.8 cm)	9" (22.9 cm)	11
1-1/4"-#10 (3.2 cm)	1-3/8" (3.2 cm)	9" (22.9 cm)	9

Packaging

PRODUCT CODE	PACKAGE	SIZE	
		Ounce	Milliliters
139886	Unicartridge	9.3 oz	275 ml
308482	Cartridge	28 oz	828 ml

STORAGE

The material should be stored at 40° -95°F (5°- 35°C). Shelf life of properly stored, unopened cartridges is 12 months.

APPLICATION

All surfaces that All Weather J51 AW will be installed on must be free of frost and ice, "pre-purging" the cartridge before putting on the static mixer to ensure uniform mixing. Condition material to 65°- 85°F (18°- 29°C) before using.

See "General Application Procedures" for Applications in Water Filled Holes

Step 1: Drill hole in concrete using a rotary-percussion power drill (rotary-hammer drill) and a carbide-tipped SDS or SDS-Plus type drill bit complying with ANSI B212.15-1994, to the diameter and embedment depth adhering to minimum spacing, minimum edge distance, and minimum concrete member thickness.

Caution: Wear suitable eye and skin protection. Avoid inhalation of dust during drilling and debris removal.

Step 2: Blow out hole using oil-free compressed air at a minimum of 70 psi. While blowing air, insert the nozzle into the hole until in contact with the bottom for not less than one second, and then withdraw. Repeat.

Step 3: Insert a cleaning brush for the proper drill hole diameter. Thrust the brush to the bottom of the borehole while twisting. Once the brush is in contact with the bottom of the hole, turn the brush one-half revolution, and then quickly withdraw the brush with a vigorous, twisting pull. Repeat.

Step 4: Repeat blow out of hole with air as per Step 2 above. Repeat step 3 followed by step 2.

Step 5: When using cartridge insert the cartridge into the extrusion tool, and attach the supplied mixing nozzle to the cartridge. Do not modify mixing nozzle. Prior to injection, dispense some mixed epoxy through the mixing nozzle and discard until the color of the extruded material becomes uniform. After uniform color is achieved, insert the end of the mixing nozzle into the borehole until in contact with the bottom. Then, dispense the adhesive while slowly withdrawing the nozzle until borehole is approximately 1/2 - 2/3 full, and then withdraw the mixing nozzle. Keep the nozzle attached on partially used cartridges. A new mixing nozzle must be used if the gel time has been exceeded between injections.

Step 6: Mark the anchor rod with the required embedment depth. Insert the clean and oil-free anchor rod into the adhesive in the borehole, turning it slowly as it is pushed downward until contact with the bottom of the borehole. Make sure the hole is completely filled with adhesive and that no gaps appear between the anchor rod and borehole.

Step 7: Adjust the alignment of the anchor in the hole immediately. Do not disturb it between the Gel Time and the Minimum Cure Time. Do not torque or apply load to the anchor until the Recommended Cure Time has elapsed.

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General Application Procedure:

Application in Water Filled Holes:

1. Concrete must be a minimum of 21 days old.
2. Drill or core the hole
3. Flush - Insert a suitably sized piece of tubing and Flush the hole with water from the bottom up until the water runs clear
4. Clean – Scrub hole with a stainless steel wire brush (available thru Dayton Superior) to remove dust and debris
5. Repeat steps 2 and 3 to ensure all loose matter or mud is expelled.
6. Trial fit the cartridge mixing nozzle extension – Ensure the extension extends to the bottom of the hole
7. Discharge a small amount of epoxy outside the hole - Ensure complete mixing is achieved shown by uniform gray color.
8. Overfill the hole with epoxy from the bottom up in one continuous lift - Withdraw the mixing nozzle extension just below the rising surface of the epoxy. Do not allow water filled voids to occur within the epoxy mass
9. Immediately insert the anchor and rotate to ensure that all embedded surfaces are covered
10. Position or restrain the anchor in its final position immediately after insertion
11. Do not disturb or vibrate the anchor until set has occurred, movement can detrimentally affect the pullout strength of the connection.

Recommended Gel & Cure Times

Gel time per ASTM C881. Minimum cure time required before the design or allowable load may be applied. Anchors are to be undisturbed during the minimum cure time.

Substrate Temp.		Gel Time	Minimum Cure Time
Fahrenheit	Celsius		
-15	-26	8 hours	36 hours
-5	-21	6 hours	28 hours
0	-18	4 hours	24 hours
5	-15	3 hours	22 hours
20	-7	45 mins	6 hours
40	4	20 mins	90 mins
50	10	15 mins	60 mins
65	18	8 mins	45 mins
70	21	7 mins	35 mins
80	27	6 mins	30 mins
100	38	5 mins	25 mins

CLEAN UP

Clean up with full strength Dayton Citrus Cleaner J48 or Xylene. Cured, hardened All Weather J51 AW can only be removed mechanically.

LIMITATIONS

FOR PROFESSIONAL USE ONLY

All surfaces that All Weather J51 AW will be installed on must be free of frost and ice. Do not thin or mix the All Weather J51 AW with any other material, solvent, thinner or other bonding agent or epoxy.

Do not use All Weather J51 AW that has exceeded its shelf life as physical properties will be adversely affected. Minimum age of concrete must be 21-28 days from date of placement depending on curing and drying conditions.

PRECAUTIONS

READ SDS PRIOR TO USING PRODUCT

- Component A – Irritant
- Component B – Corrosive
- Product is a strong sensitizer
- Use with adequate ventilation
- Wear protective clothing, gloves and eye protection (goggles, safety glasses and/or face shield)
- Keep out of the reach of children
- Do not take internally
- In case of ingestion, seek medical help immediately

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- May cause skin irritation upon contact, especially prolonged or repeated. If skin contact occurs, wash immediately with soap and water and seek medical help as needed.
- If eye contact occurs, flush immediately with clean water and seek medical help as needed
- Dispose of waste material in accordance with federal, state and local requirements
- Cured epoxy resins are innocuous

MANUFACTURER

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WARRANTY

Dayton Superior Corporation ("Dayton") warrants for 12 months from the date of manufacture or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Dayton, the product is free of manufacturing defects and conforms to Dayton's product properties in force on the date of acceptance by Dayton of the order. Dayton shall only be liable under this warranty if the product has been applied, used, and stored in accordance with Dayton's instructions, especially surface preparation and installation, in force on the date of acceptance by Dayton of the order. The purchaser must examine the product when received and promptly notify Dayton in writing of any non-conformity before the product is used and no later than 30 days after such non-conformity is first discovered. If Dayton, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the non-conforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty. Only a Dayton officer is authorized to modify this warranty. The information in this data sheet supersedes all other sales information received by the customer during the sales process. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

Dayton shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for loss of sales, revenues or profits; cost of capital or funds; business interruption or cost of downtime, loss of use, damage to or loss of use of other property (real or personal); failure to realize expected savings; frustration of economic or business expectations; claims by third parties (other than for bodily injury), or economic losses of any kind; or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform, its obligations under any contract for sale of product, even if Dayton could foresee or has been advised of the possibility of such damages. The Parties expressly agree that these limitations on damages are allocations of risk constituting, in part, the consideration for this contract, and also that such limitations shall survive the determination of any court of competent jurisdiction that any remedy provided in these terms or available at law fails of its essential purpose.