ZERUST® Axxanol™ A35CD-32 Rust Preventative

ZERUST®/EXCOR® Axxanol™ A35CD-32 is a solvent-based rust preventative that leaves a near dry-to-touch film on the protected surface. It provides powerful corrosion protection against aggressive environments such as humidity and salty aerosols for multiple metal types. Use Axxanol™ A35CD-32 to protect parts during program changeover periods in the assembly process. After allowing coated parts to completely dry, place them into ZERUST® Vapor Corrosion Inhibitor (VCI) packaging for a more robust solution that protects for years. Axxanol™ A35CD-32 enhances corrosion protection during challenging conditions such as ocean shipments. The coating is non-staining and can be removed with most conventional alkaline cleaners or left on the surface. When handling parts coated in a film of Axxanol™ A35CD-32, always wear clean gloves without lint or talc to keep metals free of corrosion and contaminants. No additional personal protective equipment (PPE) is required once the coating is dry.

ZERUST® Axxanol™ A35CD-32 is conveniently offered as a ready-to-use product. For large volume product users requiring detailed, customized product operating & maintenance guides, please contact your assigned ZERUST®/EXCOR® sales representative for further information.

User Benefits

- Leaves a near dry-to-touch thin coating
- Fully dried coating has no VOC
- Ready-to-use product
- Easy to apply and remove
- Non-staining
- Non-toxic and solvent-based
- Multimetal compatible
- Not regulated for transport

ZERUST® Worldwide Corrosion Management Solutions

For nearly 50 years, beginning with the invention of Vapor Corrosion Inhibiting (VCI) film packaging, ZERUST®/EXCOR® has led the market in quality corrosion solution products. We are dedicated to providing expert corrosion management services and broadening the range of corrosion solutions for our customers. In addition, ZERUST® users have access to on-site support from ZERUST®/EXCOR® representatives in more than 70 countries. As a result, our customers have peace of mind when they choose ZERUST® for corrosion control management.

In addition to ZERUST® ICT® VCI film and other packaging products, ZERUST® offers an increasing range of cost-effective, high-

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performance wash fluids and rust preventative products. These products are formulated to work synergistically together to provide enhanced, comprehensive corrosion solutions for our customers. Backed by our global expert technical support and testing services, a comprehensive corrosion management program can be designed and deployed to meet individual customers' needs.

- Application-specific products
- Overall cost reduction
- Reduction of corrosion issues associated with handling, packaging, and storage of precision machined, bare metal components
- Enhanced fluid maintenance and control procedures for extending the use life of wash fluids and rust preventative products
- Customer and product-specific operating guides
- ZERUST® assured corrosion-free results from effectively cleaned and dried parts

Application Methods

- Immersion
- Brush
- Spray

Precautions

- Axxanol™ A35CD-32 liquid product may show some haziness. However, this will not affect the product's performance
- Refer to Safety Data Sheet for appropriate PPE and handling precautions
- Axxanol™ A35CD-32, Safety Data Sheet, is available upon request from: *sds@ntic.com*, or contact your ZERUST® representative
- Provide adequate ventilation to minimize vapor concentrations
- Avoid contact with skin and eyes
- Do not breathe mist, spray, vapors
- Wear personal protective equipment as stipulated in Safety Data Sheet
- Reseal or close the container cap after each use.

Storage

Store in a cool, dry place and away from sunlight in original packaging. Storage temperature should be kept between 50 – 86°F (10 – 30°C) for up to 2 years from the date of shipment. Reseal or close the container cap after each use. The product will dry and thicken in an open container. If Axxanol™ A35CD-32 should accidentally freeze, move it to a location warm enough to thaw >50°F (10°C) and thoroughly mix the solution to ensure homogeneity.

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Disposal

Dispose of in accordance with local, national, and international regulations. Product in unopened original container prior to use does not meet criteria for hazardous waste according to 40 CFR 261 (no components listed on F, K, P, or U lists; not ignitable, not corrosive, not reactive, and not toxic).

Availability

ZERUST®/EXCOR® Axxanol™ A35CD-32 is sold as a ready-to-use product. Contact your ZERUST®/EXCOR® representative for ordering information.

Part Number	Product Name	Quantity
350-M-00082PL	Axxanol™ A35CD-32	5 Gal (19 L)
350-M-00082DR		55 Gal (208 L)

Application Instructions

Axxanol™ A35CD-32 is designed as a ready-to-use product and should not be diluted. Axxanol™ A35CD-32 can be applied via immersion, brush, or spray applications at a temperature range between 50 – 86°F (10 – 30°C). **The surface of parts should not exceed ambient temperature during application.** Drying times are highly dependent on temperature and humidity. Axxanol™ A35CD-32 typically dries in roughly 30 – 60 minutes at 70°F (21°C). You may accelerate drying by placing parts in an oven at no more than 140°F (60°C) for 10 – 15 minutes or using forced air drying.

Surface Preparation

Prior to the application of Axxanol™ A35CD-32, metal parts should be free from:

1. Water/moisture.
2. Process fluid residues and other fluid contaminants.
3. Particulate contaminants.
4. Fingerprints, other oils, and solvents.

Immersion Applications

Immersion application for Axxanol™ A35CD-32 is recommended when large quantities of small parts are processed or when parts have holes, slots, internal surfaces, etc., that spray applications cannot be reached. The capacity of the immersion tank is determined by the user based on the size of the components, production volume, etc.

Use a 304 or 316 stainless steel immersion tank and circulation system for holding the Axxanol™ A35CD-32 solution. It is recommended that the immersion tank floor be tapered to allow for the collection and easy drainage of the accumulated water from the tank. In addition, the tank should contain a sight glass on the wall for easy assessment of the water level in the tank and a drain valve at the bottom for water drainage purposes. The installation of a solvent-compatible pump (3 – 5

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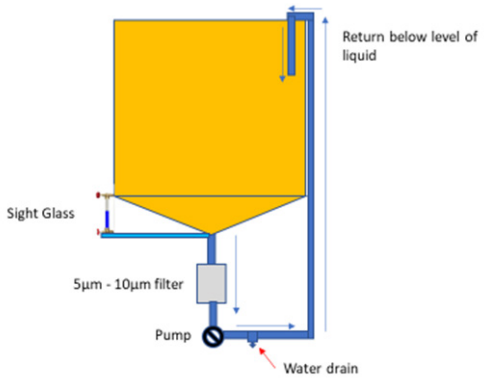
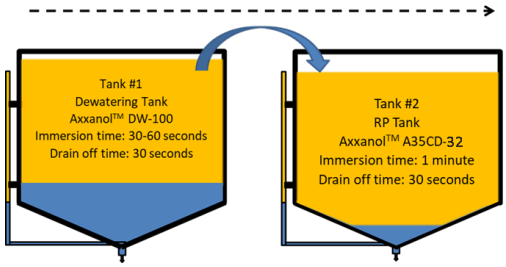
turns per hour) and a 5-micron stainless steel filter is also recommended for each process, respectively, and the fluids are filtered continuously. In addition, although not imperative, we also recommend the installation of ultrasonic transducers in the tank. This will facilitate particulate removal, water displacement from pores, and subsequent improved rust preventative oil penetration into the pores of the components. See tank schematic examples below. **WARNING: Check with the ultrasonic equipment manufacturer for applicability of use with grey and nodular cast iron.** Whenever possible, minimize Axxanol™ A35CD-32 exposure to the environment by: reducing the dip tank opening, incorporating a cover, and/or using polypropylene floating balls. This will help reduce the solvent evaporative loss and prolong the product tank life.



To prevent water contamination of the Axxanol™ A35CD-32 solution, a dewatering step is recommended. This requires employing two (2) identical tanks, as depicted below. The first tank is used as a dewatering step and should contain a dewatering fluid, such as ZERUST® AxxaWash™ DW-100 (Contact your ZERUST®/EXCOR® sales representative for further information). The second tank is used as the rust preventative tank and should contain the ready-to-use Axxanol™ A35CD-32 rust preventative.



The following process sequence is required per best practice guidelines:

1. Check that the parts are clean, dry, and free of oils and dirt.
2. Immerse parts completely in Tank #1 for 30-60 seconds. The longer the part is immersed, the more moisture/water will be removed from the metal surface, resulting in better rust preventative coating coverage when parts are immersed in tank #2.
3. Remove parts from Tank #1 and allow to drain over Tank #1 for ~30 seconds.
4. **Parts surfaces should be close to the temperature of tank #2 prior to entering tank #2.**
5. Immerse parts in Tank #2 for 1 minute or more.
6. Remove parts from Tank #2 and allow them to drain over Tank #2 for 30 seconds.
7. Place parts on a clean rack and allow to drain/dry for an additional 5-10 minutes if possible.
8. After the application of Axxanol™ A35CD-32, ensure that the coated parts are thoroughly dry before handling.
    a. Part drying can be accelerated by air knife, heated blow-off, or forced air oven as long as oven temperatures do not exceed 140°F (60°C).

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9. If parts are not packaged in ZERUST® ICT®510-C*** packaging or installed within 24 hours following Axxanol™ A35CD-32 coating, they must be stored in a clean, dry, and dust-free environment or in clean poly bags.

   ***For additional long-term protection, other ZERUST® products, such as ZERUST® ICT®510-C Ferrous Film, can be used in conjunction with Axxanol™ A35CD-32. Please refer to the ZERUST® ICT®510-C Ferrous Film technical data sheet for additional protection information (*See Appendix A for ZERUST® VCI Packaging Guidelines*).

Regularly drain any water that collects at the bottom of both tanks.

- Open the drain valve and drain water until 1st sign of working solution.
- Recommend draining water from the tanks before every production shift and before or after every production break, whichever is more frequent.

Brush Applications

A clean brush made of plastic bristles used for solvent-based paint can be used to apply Axxanol™ A35CD-32. After each application, the brush should be checked for any dirt or contamination and should be cleaned.

The following process sequence is required per best practice guidelines:

1. Check that the brush and parts are clean, dry, and free of oils and dirt.
2. You will need a 304 or 316 stainless steel bucket to decant Axxanol™ A35CD-32 from the original container.
   a. Do not use the original pail or drum, as the product will dry and thicken if the container is left over for an extended period of time.
   b. Ensure the application equipment (304 or 316 stainless steel bucket) is clean and dry.
   c. Do not pour back any unused product from the 304 or 316 stainless steel bucket back into the original container after use. Instead, dispose of any unused product in accordance with local, national, and international regulations.
3. Fill the 304 or 316 stainless steel bucket with the required amount of Axxanol™ A35CD-32 needed for your application.
   a. The stainless steel bucket should be covered at all times to reduce product evaporative losses.
4. To prevent the accelerated solvent loss, part temperatures should not exceed 86°F (30°C) when applying Axxanol™ A35CD-32.
5. Evenly coat the required surface of the parts with Axxanol™ A35CD-32.
   a. Visually check the parts to ensure all surfaces are covered.
   b. For a longer protection period, coat the surfaces of the part again to build up the coating thickness.
   c. **Note:** On vertical surfaces, some product may pool on the bottom and/or in holes and depressions. The excess product may result in a higher concentration (thicker) of the product, leading to stickiness. Although this thicker coating offers stronger corrosion protection, the product will no longer be "near dry-to-touch."
6. Ensure coated parts are near dry-to-touch before handling.
   a. Part drying can be accelerated by air knife, heated blow-off, or forced air oven as long as oven temperatures do not exceed 140°F (60°C).
7. If parts are not packaged in ZERUST® ICT®510-C*** packaging or installed within 24 hours following Axxanol™ A35CD-32 coating, they must be stored in a clean, dry, and dust-free environment or in clean poly bags.

   ***For additional long-term protection, other ZERUST® products, such as ZERUST® ICT®510-C Ferrous Film, can be used in conjunction with Axxanol™ A35CD-32. Please refer to the ZERUST® ICT®510-C Ferrous Film product information sheet

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for additional protection information (*See Appendix A for ZERUST® VCI Packaging Guidelines*).

Spray Applications

Any spraying system that is capable of spraying water can be used to spray Axxanol™ A35CD-32. Typical conveyor spray equipment (for solvent-based products) can be used, as well as typical airless paint sprayers. Ensure adequate ventilation in the application area. Axxanol™ A35CD-32 should not be reused or recirculated due to evaporation and contamination. Appropriate respiratory protection should be worn during spray applications. **WARNING: Do not spray near open flames, sources of sparks, or other sources of ignition.**

The following process sequence is required per best practice guidelines:

1. Check that the parts are clean, dry, and free of oils and dirt.
2. Ensure the application equipment (spray tank) is clean and dry and spray nozzles are free and clear.
    a. Reference the below **Bath Clean-Out Procedure** section for equipment cleaning instructions.
3. Fill the sump or reservoir to the operating level with the required amount of Axxanol™ A35CD-32. The sump or reservoir should be covered at all times to reduce product evaporative losses.
4. To prevent the accelerated solvent loss, part temperatures should not exceed 86°F (30°C) prior to entering the rust preventative spray chamber.
5. Adjust conveyor speed to ensure parts are adequately and completely coated on all sides. Full cone nozzles are recommended.
    a. Axxanol™ A35CD-32 should not be reused or recirculated due to evaporation and contamination.
6. Ensure coated parts are near dry-to-touch before handling.
    a. Part drying can be accelerated by air knife, heated blow-off, or forced air oven as long as oven temperatures do not exceed 140°F (60°C).
7. If parts are not packaged in ZERUST® ICT®510-C*** packaging or installed within 24 hours following Axxanol™ A35CD-32 coating, they must be stored in a clean, dry, and dust-free environment or in clean poly bags.

    ***For additional long-term protection, other ZERUST® products, such as ZERUST® ICT®510-C Ferrous Film, can be used in conjunction with Axxanol™ A35CD-32. Please refer to the ZERUST® ICT®510-C Ferrous Film product information sheet for additional protection information (*See Appendix A for ZERUST® VCI Packaging Guidelines*).

Following the application of Axxanol™ A35CD-32 on the parts, you should:

1. Avoid the contact of metal parts with wood, paper, or cardboard during packaging, as these materials contain moisture and other corrosion-causing contaminants.
2. Wear clean gloves that are free of lint or talc when handling components to prevent corrosion-inducing fingerprints.
3. Ensure that the coated parts are near dry-to-touch before handling. Part drying can be accelerated by air knife, heated blow-off, or forced air oven as long as oven temperatures do not exceed 140°F (60°C).

Bath Clean-Out Procedure

Optimal performance of the Axxanol™ A35CD-32 is achieved via routine maintenance and monitoring. When recharging a fluid tank, a thorough clean-out of the tank is beneficial to maintain operating bath efficacy. Failure to clean out or maintain tanks leads to contamination and the depletion of functional chemicals, build-up of metal swarf, tramp oil, and potential bacterial/fungal growth. These factors can reduce fluid sump life and accelerate equipment and part corrosion.

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Check nozzle orifice diameters and replace nozzles if required. Also, ensure nozzles are aligned correctly.

Steps for proper clean-out

1. Drain the entire system, including tanks, feed lines, and filters.
2. Remove all metal swarf and other debris from the tank, sumps, return trenches, oil pans, and filtration units. For spray application, check nozzle orifice diameters and replace nozzles if required. Ensure nozzles are aligned correctly.
3. For efficient cleaning, fill the system or tank with enough high flash mineral spirits (Contact your ZERUST®/EXCOR® sales representative for specific mineral spirit to use) to circulate through all lines and machines.
4. Typically, bath clean-out requires the solvent to circulate from 30-60 minutes. During this circulation period, brush all trenches and filter elements (backflush sintered stainless steel filter), scrub machines, and oil pans. If a stainless steel filter is used, backflush the filter completely. When optimal cleaning is achieved, drain the mineral spirit from the system.
5. If the mineral spirits used for rinsing is dirty or noticeably contaminated, a second rinse with mineral spirits may be required.
6. Fill the clean system with the required amount of Axxanol™ A35CD-32.
7. Circulate the Axxanol™ A35CD-32 through the system prior to commencing production.

Bath Maintenance

Axxanol™ A35CD-32 is a ready-to-use fluid and does not need dilution for application. However, dirt, metal fines, and/or other particulates suspended in solution may possibly adhere to part surfaces resulting in unacceptable inclusions beneath or within the applied rust preventative coating. Surface particulates can also induce spot corrosion. Therefore, it's recommended to evaluate the particles in both the dewatering tank and the working solution tank using the Gravimetric analysis **daily**. Please reference the below **Gravimetric Analysis Procedure** section for further details.

At the same time, evaporation of the solvent will cause the product concentration in the immersion tank to increase. When this happens, the coated parts are not near dry-to-touch. Therefore, it's recommended to evaluate the viscosity of the working solution using a Cannon-Fenske Routine Viscometer **daily**. Please reference the below **Cannon-Fenske Routine Viscometer Procedure** section for further details.

Particulate Evaluation

The selection of the filter pore size is based on the OEM specification. When the threshold for the acceptance limit has been exceeded, clean or change the sump tank filter and re-check for particulates.

Gravimetric Analysis Procedure

Gravimetric analysis is used for total particulate weight evaluation per unit volume. This procedure requires careful preparation of the filter to remove any moisture or other volatile material prior to the filtration process.

1. The filter may be pre-washed with the solvent provided by ZERUST® and then dried in an oven at an elevated temperature overnight.

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2. After drying, weigh the filter on the analytic balance and record it as **M1**.
3. The filter is then placed in the vacuum filtration flask, and the collected working solution is filtered through it, leaving the particles on the filter disc.
4. Once the filtration is complete, the filter is carefully removed from the vacuum filtration flask and dried in an oven to evaporate any residual solvent.
5. The dried filter is then weighed again and recorded as **M2**. Thus, the weight of the particles collected can be determined by **M2** - **M1**.
6. Particulate counts and size evaluation (optional only if particulate counts and size are sensitive)
    a. The filter disc is examined to determine the number and size of particles according to the specification.
    b. The sizing and counting process can be accomplished using manual or computer imaging techniques.

Cannon-Fenske Routine Viscometer

The Cannon-Fenske Routine Viscometer is a two-tubed glass device that uses the force of gravity and a precise volume capillary to determine Kinematic Viscosity. Kinematic Viscosity is measured in centistokes (cSt) and depends on the time it takes for the meniscus to travel from the starting line to the finish line, as well as the 2-dimensional volume of the viscometer.

Cannon-Fenske Routine Viscometer Procedure

Note: viscosity is highly dependent on temperature. If a constant temperature water bath is not available, perform the following procedure in an area at a temperature of 72°F (22°C) ± 2°F (1.1°C).

1. Adjust water bath temperature to 72°F (22°C).
2. Charge 6.6 mL working solution into the viscometer, place the viscometer into the water bath.
3. Allow the viscometer temperature to equilibrate with the bath for 20 minutes.
4. Once equilibrated, use the pipette fill bulb *(See figure 1-**A.** on page 9)* to pull a vacuum on the small tube. The solution will rise past the two marked lines *(See figure 1-**B.** & **C.** on page 9)* on the viscometer. Once passed the top line *(See figure 1-**B.** on page 9)*, remove the pipette bulb *(See figure 1-**A.** on page 9)*.
5. The solution will begin to drain. As soon as the meniscus passes the top line *(See figure 1-**B.** on page 9)* on the viscometer, begin the stopwatch.
6. As the solution drains, watch very closely for it to pass the bottom line *(See figure 1-**C.** on page 9)* on the viscometer. When that has happened, stop the stopwatch. Record the time in seconds.
7. Repeat steps 4-6 three times.
8. Calculate the average time of three repeats.
9. Use the table below on page 8 to determine the concentration.
10. Make sure to clean the viscometer since any particulate matter or residual material will lead to blockage in the capillary and or a change in the nature of the test. To clean, flush mineral spirits through the entire viscometer at least twice, then finally flush it with ethanol twice, and carefully place it into a drying oven to remove the excess ethanol.

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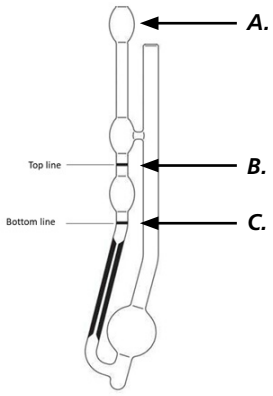

Figure 1

Concentration	Time in seconds
20%	606.9
21%	628.9
22%	651.8
23%	675.5
24%	700.0
25%	725.4
26%	751.8
27%	779.1
28%	807.4
29%	836.7
30%	867.1
33%	965.1

Viscosity Control Chart for Axxanol™ A35CD-32

Run Time Chart for Axxanol™ A35CD-32 bath				
Level		**Time in seconds**	**%**	**Fix actions**
	Low Outside Operating Range	456.17	12	1. Shut Down Production 2. Add concentrate* to bring the bath up to 25% 3. Refill with fresh Axxanol™ A35CD-32 to operating level
		472.74	13	
		489.92	14	
		507.71	15	
	Low Corrective Action Range	526.16	16	1. Add concentrate* to bring the bath up to 25% 2. Refill with fresh Axxanol™ A35CD-32 to operating level
		545.27	17	
		565.08	18	
		585.61	19	
	Normal Operating Range	606.88	20	1. System operating normally. If the concentration is near the low range, add one percentage concentrate*. If near the high range, do not add chemicals. 2. Refill with fresh Axxanol™ A35CD-32 to operating level
		628.93	21	
		651.78	22	
		675.45	23	
		699.99	24	
		725.42	25	
		751.77	26	
		779.08	27	
		807.38	28	
		836.71	29	
		867.11	30	
	High Corrective Action Range	898.61	31	1. Dilute bath down to 25% with mineral spirits** 2. Refill with fresh Axxanol™ A35CD-32 to operating level
		931.25	32	
		965.08	33	
		1000.14	34	
	High Outside Operating Range	1036.47	35	1. Shut Down Production 2. Dilute bath down to 25% with mineral spirits** 3. Refill with fresh Axxanol™ A35CD-32 to operating level
		1074.13	36	
		1113.15	37	
		1153.58	38	

* Contact your ZERUST®/EXCOR® sales representative for more information about the availability of the concentrate.
** Contact your ZERUST®/EXCOR® sales representative for specific mineral spirits to use.

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Bath Life

Both the dewatering and Axxanol™ A35CD-32 tank clean-out frequency is dependent upon the cleanliness of incoming parts, water contamination levels, sump design, production rate, and other environmental factors. The tank should be drained, cleaned out, and recharged with fresh product following every 10 replenishment cycles. Reference the above **Bath Clean-Out Procedure** section on page 5 for equipment cleaning instructions.

Corrosion Prevention

Short to Medium Term Protection

Axxanol™ A35CD-32 is designed to provide up to one year of indoor storage and in-transit protection. For large volume product users requiring detailed, customized product operating & maintenance guides, please contact your assigned ZERUST®/ EXCOR® sales representative for further information.

Long-Term Protection

After the Axxanol™ A35CD-32 coating has thoroughly dried on the metal surface, you may place or wrap the clean and dry parts with the use of ZERUST® ICT®510-C VCI bags and/or films for long-term (years) corrosion protection, such as export shipment or inventory storage (*See Appendix A for ZERUST® VCI Packaging Guidelines*).

Specifications

Part number	350-M-00082
Availability	5 gallon pail (PL), 55 gallon drum (DR)
Description	Near dry-to-touch solvent-based rust preventive coating.
Appearance	Amber
Protected Substrates	Excellent for ferrous-based alloys and compatible with non-ferrous alloys.
Coverage*	2037 ft^2 (189 m^2) per gal
Typical Wet Film Thickness*	20 µm
Applications	Immersion, brush, and spray
Removability	ZERUST® AxxaWash™ or commercial alkaline cleaners.
Flash Point	>149°F (65°C)
Density	6.9 Lbs/gal (0.83 g/ml)
VOC	5.96 Lbs/gal (715 g/L)
Viscosity	2.547 cSt @ 40°C

*The theoretical coverage estimates, based on the stated wet film thicknesses (WFTs), should be used as a guide only. These estimates were generated based on internal lab measurements of product coating on flat, smooth 1010 steel stock. Actual coverage data will vary in actual use based on the method of application, type of equipment used, part geometry, surface roughness, drain-off time, drag-out rate, evaporative loss, etc.

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Safety

Safety Data Sheet

Axxanol™ A35CD-32, Safety Data Sheet, is available upon request from: *sds@ntic.com*

European Union the Regulation (EC) No 1907/2006 REACH SDS and NTIC Only Representative letter available upon request from: *sds@ntic.com*

Axxanol™ A35CD-32 in unopened original container prior to use does not meet criteria for hazardous waste according to 40 CFR 261 (no components listed on F, K, P, or U lists; not ignitable, not corrosive, not reactive, and not toxic).

Handling

Gloves and safety glasses are recommended when handling Axxanol™ A35CD-32; we also always recommend having clean, dry gloves on when handling metal components to avoid leaving contaminants (such as fingerprints) that may cause corrosion. Appropriate respiratory protection should be worn for spray application and may be needed if there is poor ventilation in the immersion application. Please refer to ZERUST® Axxanol™ A35CD-32 Safety Data Sheet for further details.

Odor Concerns

Axxanol™ A35CD-32 has a hydrocarbons/solvent odor.

Frequently Asked Questions

Should my customer receiving fully dried parts coated with Axxanol™ A35CD-32 be concerned with VOC?

No, parts coated with Axxanol™ A35CD-32 that are fully dried do not have any VOC. VOC is present in the ready-to-use Axxanol™ A35CD-32 product. However, when the coating fully dries on the part's surface, the VOCs evaporate.

What type of tank should I use for immersion application?

Tanks made out of 304 or 316 stainless steel are recommended. Mild steel tanks can be used but should have good structural integrity and be maintained in good working order. ***Plastic and poly-lined tanks should be avoided.***

Can I use Axxanol™ A35CD-32 with a non-ZERUST® wash solution?

ZERUST® has a full line of cleaner products (e.g., AxxaWash™ KF-121, KF-123, KF-124, etc.) that are compatible or even work synergistically with Axxanol™ A35CD-32. Before combining Axxanol™ A35CD-32 with any non-ZERUST® wash solution, a compatibility test should be performed.

Can I use Axxanol™ A35CD-32 with non-ZERUST® VCI packaging?

ZERUST® offers a complete line of VCI packaging products (e.g., ICT®420, ICT®510, ICT®520, etc.) that are compatible or work synergistically with Axxanol™ A35CD-32. However, ZERUST® has not completed any compatibility tests with any non-ZERUST® VCI packaging products, so it's recommended that the end-user performs their own compatibility tests before combining Axxanol™ A35CD-32 with any non-ZERUST® VCI packaging.

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Can I paint onto the part coated with Axxanol™ A35CD-32 without removing it?

No, there are components in Axxanol™ A35CD-32 that do not make it conducive to paint adhesion. Therefore, it's recommended that the Axxanol™ A35CD-32 coating is removed with ZERUST® AxxaWash™ products (e.g., AxxaWash™ KF-121, KF-123, KF-124, etc.) or commercial alkaline cleaners prior to painting.

Is welding quality affected on parts coated with Axxanol™ A35CD-32?

Axxanol™ A35CD-32 coated 1/8" cold rolled steel plates were successfully stick welded together. However, some brown/black carbonization residue was noticed and was not easily removed from the surface. Good welding practices are to scrub, sand, or wire brush the areas to be welded, which would remove Axxanol™ A35CD-32 from the area.

Can Axxanol™ A35CD-32 be applied on a hot metal surface?

Yes. However, the surface temperature should be lower than 140°F (60°C).

Will Axxanol™ A35CD-32 affect the subsequent heat treatment process (hardening)?

At a temperature of 635°F (335°C), 99% of Axxanol™ A35CD-32 was burned off. Therefore, we do not anticipate any negative impact to the heat treatment process under ideal conditions. However, for best practice, we recommend testing before use or washing off Axxanol™ A35CD-32 with a ZERUST® wash solution (e.g., AxxaWash™ KF-121, KF-123, KF-124, etc.) before heat treatment.

Why is there sticky residue on the surface of the part that was coated with Axxanol™ A35CD-32?

If the Axxanol™ A35CD-32 coating is applied in excess or is not properly drained or dried, it may result in a higher concentration (thicker) of the product on the surface of the part, leading to stickiness. Although this thicker coating offers stronger corrosion protection, the product will no longer be "near dry-to-touch" and will have VOC.

What is the maximum temperature that Axxanol™ A35CD-32 coating can withstand?

Axxanol™ A35CD-32 coating remains stable with temperatures up to 212°F (100°C). However, any temperatures in excess of 212°F (100°C) will result in Axxanol™ A35CD-32 coating breaking down and no longer offering corrosion protection.

Does Axxanol™ A35CD-32 stain metal surfaces?

No, when Axxanol™ A35CD-32 is used as prescribed and coated parts are stored indoors or as part of corrosion protection for export parts packaged in boxes, crates, VCI packaging, and/or UV resistant packaging; Axxanol™ A35CD-32 does not stain the metal surface.

What is the best way to remove Axxanol™ A35CD-32?

The Axxanol™ A35CD-32 coating may be removed using ZERUST® AxxaWash™ cleaners (e.g., AxxaWash™ KF-121, KF-123, KF-124, etc.) or any commercial alkaline cleaners.

How do I dry the parts after coating them with Axxanol™ A35CD-32?

Axxanol™ A35CD-32 contains a high flash solvent. Therefore, drying/solvent evaporation times are highly dependent on

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temperature and humidity. Axxanol™ A35CD-32 typically dries in roughly one hour at 70°F (21°C). You may accelerate drying by placing parts in an oven at no more than 140°F (60°C) for 10 – 15 minutes or under a mechanical fan or air knife for ~ 30 minutes. If a fan or air knife is used, clean filtered air should be utilized to prevent debris and/or contaminations from attaching to the surface.

Can I pack parts coated with Axxanol™ A35CD-32 into ZERUST® VCI or plain plastic packaging when they are still wet?

For optimum protection and best practice, it's highly recommended to completely dry the Axxanol™ A35CD-32 coated parts before placing the parts inside any packaging or container. Axxanol™ A35CD-32 has been tested to be compatible with ZERUST® VCI packaging and plain plastic packaging. Test before using any other types of non-ZERUST® VCI packaging (See Appendix A for packaging guidelines).

Is spraying or immersion application better for applying Axxanol™ A35CD-32?

The corrosion protection provided by both applications is identical. However, immersion application for Axxanol™ A35CD-32 is recommended when large quantities of small parts are processed or when parts have holes, slots, internal surfaces, etc., that spray applications cannot reach. If applied by spray, additional cleaning benefit is seen due to spray impingement. However, you should ensure proper draining of the excess product and completely dry the coating to avoid any sticky residue on the part's surface.

How long will Axxanol™ A35CD-32 protect the parts if stored in my warehouse without additional packaging?

Axxanol™ A35CD-32 is designed to provide up to 1 year of indoor storage protection depending on warehouse conditions (Temperature, RH), without additional packaging. For long-term protection, you may place or wrap the clean and dry parts with the use of ZERUST® ICT®510-C VCI bags and/or films for long-term (years) corrosion protection, such as export shipment or inventory storage (*See Appendix A for ZERUST® VCI Packaging Guidelines*).

Do I need a circulating pump for the immersion tank? If so, what flow rate?

Yes, a circulating pump is required, and the flow rate is tank size-dependent. Typical tank turnover rates should be 3x -5x per hour. For example: a 100 gallon tank should have a pump sized with a minimum flow rate of 300 – 500 gph (gallons per hour) or 5 – 8.33 gpm (gallons per minute).

Do I need a filter for the sump tank? If so, what filter size?

A filtration system is always recommended, and the filter porosity is dependent on the customer's cleanliness level requirement. A typical filter media size is 25 to 50 microns. However, it is recommended to use a 5-micron stainless steel reusable filter such as available from: www.homebrewit.com. Home Brew It is not endorsed by, directly affiliated with, or sponsored by NTIC.

How do I reduce evaporative losses in an immersion tank application?

There are several efficient ways to reduce evaporative losses in a tank, including; Minimizing the entry opening by using a narrower dip cage, adding walls around the dip tank opening, using floating polypropylene balls to reduce liquid surface exposure, and avoiding a direct suction fan over the immersion tank, etc.

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How do I reduce evaporative losses in a spray sump?

The most effective way to reduce evaporative losses in a spray sump system is to ensure that the sump tank is covered at all times. You may also use floating polypropylene balls to reduce liquid surface exposure, which will help reduce evaporative losses. Also, keep in mind that Axxanol™ A35CD-32 should not be recirculated or reused due to evaporation and contamination concerns.

Can I reapply Axxanol™ A35CD-32 onto the part after a few months to increase the corrosion protection duration?

Yes, Axxanol™ A35CD-32 may be reapplied onto the parts. As always, it's recommended that the parts are clean and free from debris, oil, or other contaminations before reapplying. ***NOTE:*** *The reapplication of Axxanol™ A35CD-32 won't revert any corrosion that already exists.*

Where can I find out more about other ZERUST® products to use with Axxanol™ A35CD-32?

Visit www.zerust.com to see our full line of corrosion inhibiting (VCI) films, papers, and rust preventative coatings that can be used in conjunction with Axxanol™ A35CD-32.

Where can I find the Safety Data Sheet for Axxanol™ A35CD-32?

Email sds@ntic.com to request the Safety Data Sheet for Axxanol™ A35CD-32 and/or all other ZERUST® products.

Contact

Please contact your ZERUST® representative for questions about Axxanol™ A35CD-32.

Email: nticsales@ntic.com **Phone:** +1 (763) 225-6600 **Toll-Free:** +1 (800) 328-2433

Regulatory Compliance and Limited Warranty

Axxanol™ A35CD-32 complies with the following:

RoHS (2011/65/EU) the following substances are not contained in the product above their limits (0.1 %) : Heavy metals: lead, mercury, cadmium, chrome VI; Flame retardants: Polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE); Phthalates: Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), diisobutyl phthalate (DIBP), diisodecyl phthalate (DIDP), diisononyl phthalate (DINP).

REACH SVHC - The following substances are not contained above 0.1% in the product: Substances listed in the ECHA Candidate List for Authorisation (SVHC list); Substances listed in REACH Annex XIV (Substances requiring authorization).

GADSL - Acc. to the standard the following are not contained in the product above their limits: Declarable substances, Prohibited substances.

CA Prop 65 - Listed substances are not contained.

TSCA - Substances in the product are: Listed on the TSCA Inventory of Chemical Substances; Not subject to Significant New

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Use Rules (SNURs).

TRGS 615 - The product does not contain: Nitrites, Secondary amines.

DECLARATION

This data sheet and information it contains is considered to be accurate at the date of printing. No representation or warranty, expressed or implied is made as to the accuracy or completeness of the data and information contained in this publication. It is the user's obligation to evaluate and use products safely and within the scope advised in the data sheet and to comply with all applicable laws and regulations.

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All statements, technical information and recommendations contained herein are based on validations and tests conducted by Northern Technologies International Corporation/ZERUST® or its partners and are believed to be reliable, but the accuracy or completeness thereof is not guaranteed. We warrant our products will be free from defects when shipped to customer. Our obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify Northern Technologies International Corporation/ZERUST® or its partners or agent of the claimed defect within 3 months after shipment of product to customer. Customer shall pay all freight charges for replacement products. We shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products. And any financial claims shall be limited to the value of the products sold.

Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. No representation or recommendation not contained herein shall have any force or effect unless in a written document signed by an officer of the company. The foregoing warranty is exclusive and in lieu of all other warranties, express, implied or statutory, including without limitation any implied warranty of merchantability or of fitness for a particular purpose. In no case shall Northern Technologies International Corporation/ZERUST® be liable for incidental or consequential damages. For full warranty and disclaimer information visit, www.zerust.com/warranty.

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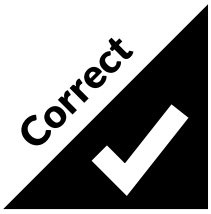
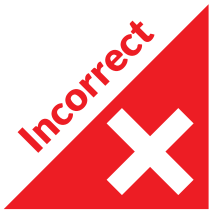
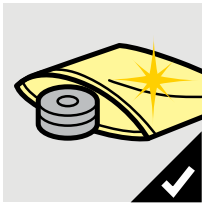
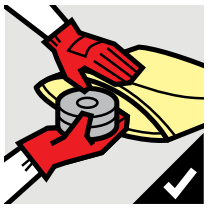
ZERUST® VCI Packaging Guidelines



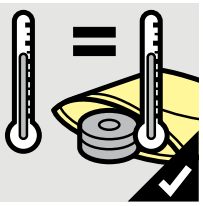


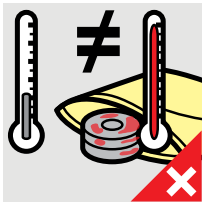


- Pack only clean and dry parts.

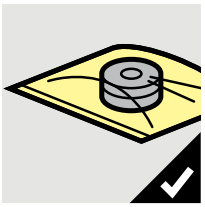


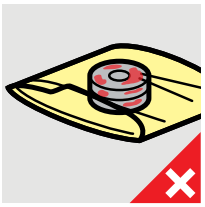
- Always wear clean and dry gloves when handling metal parts to protect them from corrosion causing fingerprints.



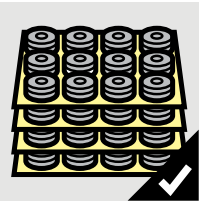


- When packing, the temperature of the parts should be about the same as the room temperature to avoid condensed moisture.

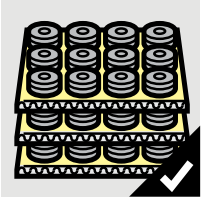


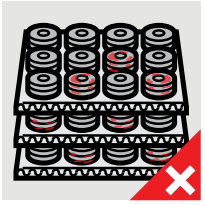


- Tightly close packages with tape, heat seal, zip ties or by folding over. Reseal after every use.



- Insert additional ZERUST® materials as interleave for added protection in larger and tightly packed or layered packages.





- Avoid direct contact of metal with wood, paper or cardboard (sources of moisture and acid).

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