D-5015NS/ZC-015 Instruction Manual

Procedures For Preparing Area Prior To Applying D-5015NS/ZC-015:

Always refer to the **safety data sheet (SDS)**, **technical data sheet (TDS)**, and **label** prior to applying **D-5015NS/ZC-015** if you have any questions about these products.

Always wear gloves, protective clothing, and protective eyewear to prevent **D-5015NS/ZC-015** from making contact with the skin and eyes.

When working with atomized version of **D-5015NS/ZC-015,** make sure there is proper airflow in the area where **D-5015NS/ZC-015** will be applied and always wear a proper mask to prevent the inhalation of fumes from **D-5015NS/ZC-015**.

Make sure there are no sparks, open flames, or other combustion sources in the area where **D-5015NS/ZC-015** will be applied.

Ensure that any primers, sealants, and other coatings are cured before applying **D-5015NS/ZC-015**.

Vacuum and wipe surfaces so that moisture and other foreign material that is on the surface are removed.

Have lighting equipment available to inspect areas for contamination and rework prior to applying **D-5015NS/ZC-015**.

It is imperative that **Type III** surfaces are clean and free of dirt and other contaminants. Clean surfaces with the following aliphatic naphtha based wipe solvents, such as **Sur-Prep® 3160**, **Sur-Prep® 3167**, and **D-5640NS/ZC-640**.

Do not use Isopropyl alcohol and acetone to wipe and clean the surface.



If the sprayed form of **D-5015NS/ZC-015** shows fisheyes, separations, or anything that prevents it from being homogeneous and free of voids, then the surface is not clean and needs to be vacuumed and/or wiped again.

D-5015NS/ZC-015 Product Information and Benefits:

D-5015NS/ZC-015 are unique products that are found on the **MIL-PRF-81309 military specification** as **D-5015NS** is on **Mil-PRF-81309H Type III Class 2 Grade B: CO_2** while **ZC-015** is on the **QPL** for **Mil-PRF-81309H Type III Class 1**.

***Type III** usage is primarily for avionics applications for connectors, circuit cards, motherboards, ect.

D-5015NS/ZC-015 Instruction Manual

D-5015NS/ZC-015 Product Information and Benefits (Continued From Page 1):

D-5015NS/ZC-015 is a light duty version of **D-5026NS/ZC-026** that provides a thin protective barrier coating.

D-5015NS/ZC-015 is ideal for protecting electrical connectors from corroding and displaces water from electrical and electronic components.

D-5015NS/ZC-015 prevents fretting corrosion and erosion of the plated surface of the connector as well as other corrosion and is excellent for overnight tooling protection on highly critical surfaces.

D-5015NS/ZC-015 has a low toxicity level and is free of chromates and heavy metals.

D-5015NS/ZC-015 leaves a vey thin film with minimal product build up.

When applied properly, **D-5015NS/ZC-015** provides a light, soft, ultra-thin film with moisture displacing properties.

D-5015NS/ZC-015 is a light duty version of **D-5026NS/ZC-026**.

Masking Procedures To Follow Prior To Applying D-5015NS/ZC-015:

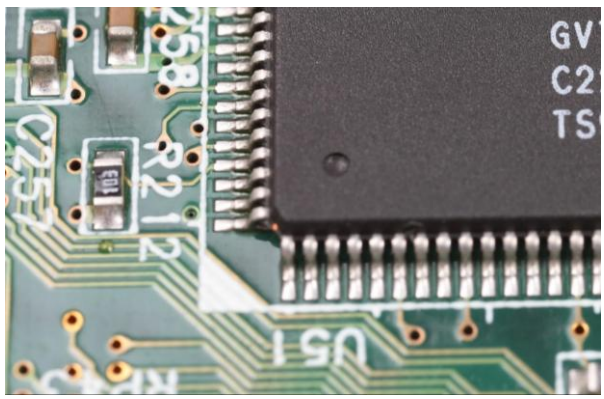
Mask areas that will not be coated with **D-5015NS/ZC-015** , such as electrical connectors, pins and joints in sliding surface contact, control cables, pulley and quadrant cable grooves, bushing and bearings for all types, which includes lined Teflon, silicone or rubber seals, high temperature areas that are above **200°F (93°C)**, wire bundles, lubricated surfaces (i.e hydraulic actuator pistons), drain valves and oxygen system components (i.e. bottles, pressure metering and indicating equipment and connections, ect).



Areas Where D-5015NS/ZC-015 Should Be Applied:

D-5015NS/ZC-015 can be applied on tooling, electronic components, such as electrical connectors, circuit cards and mother boards.







D-5015NS/ZC-015 Instruction Manual

Methods For Applying D-5015NS/ZC-015:

D-5015NS comes in aerosol packaging and can be applied via the following methods:

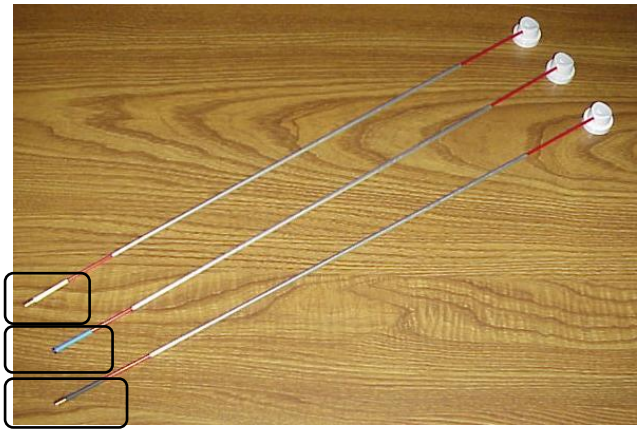
*Spraying Via Aerosol Can

***Formit®** Extension Wands-For use with all **Zip-Chem®** aerosols to reach difficult to access areas, such as stringer edges.

***Zip-Chem® Aerosol Trigger Sprayer** that is designed for use with any **Zip-Chem®** aerosol can

Zip-Chem® Aerosol Trigger Sprayer →



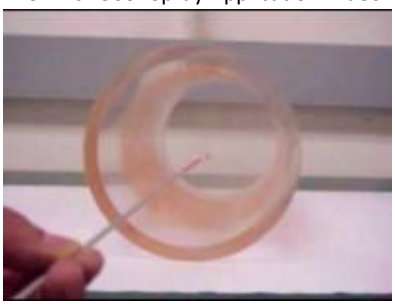


***Formit® 360˚ Spray (White Tube) Wand** →

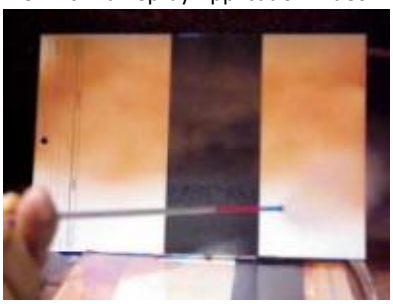
***Formit® Fan Spray Spray (Blue Tube) Wand** →

***Formit® 180˚ Spray (Black Tube) Wand** →

***Formit® 360˚** Spray Application Video



***Formit® Fan** Spray Application Video



***Formit® 180˚** Spray Application Video



D-5015NS/ZC-015 Instruction Manual

Methods For Applying D-5015NS/ZC-015 (Continued From Page 3):

ZC-015 comes in bulk containers and can be applied using **airless**, **air assist**, **HVLP**, and any other spray equipment used to apply paint and other coatings.

Please reach out to a **Zip-Chem®** application expert for tips on how to properly apply **ZC-015**.

1.) HVLP Spray Gun Setup

HVLP Spray Gun



A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.

B.) Set the **air pressure**. This is very important because **ZC-015** is applied **thin** so **too much pressure** will result in a **dry spray** and texture of **ZC-015** while **too little pressure** will result in a **poor atomization** and **orange peeling** of **ZC-015**.

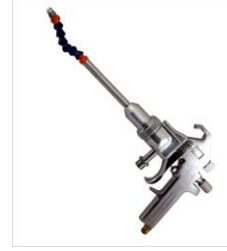
C.) If you see texture in the spray of **ZC-015**, then increase the **air pressure** of your **HVLP gun**. If you see an **overspray cloud** of **ZC-015**, then decrease the **air pressure** slightly. The proper spray pattern for **ZC-015** should be a **slightly wet pass** with **no flooding or sagging** because **thinly applied products** like **ZC-015** can run very fast.

D.) One pattern that should be used when using the **HVLP gun** to apply **ZC-015** is the **fan pattern** because it uses a **full wide fan spray** which provides better consistency and leveling when applying **ZC-015** with the **HVLP spray guns**.

E.) The **air pressure** when the trigger is pulled for the gun should be **20–30 PSI** even though most guns specify **10 PSI** at the **air cap**.

F.) Always set the pressure with the **trigger fully pulled** because the **pressure** drops **under flow**.

Airverter HVLP Spray Gun



G.) Close off the **air** and **fluid adjustment knobs**.

H.) Slowly open the **air adjustment knob** with the **trigger** pulled.

I.) Open the **fluid adjustment knob** slowly until you see a **fine mist** from the **air cap**.

J.) Continue to fine tune the settings until the desired spray pattern is achieved.

D-5015NS/ZC-015 Instruction Manual

Methods For Applying D-5015NS/ZC-015 (Continued From Page 4):

2.) Air Assisted Spray Gun Setup



A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.

B.) For **pressure settings**, use the **lowest pressure** possible so that **ZC-015** can be spray applied as a **clean fan** with the width of the spray being shaped like **a fan**.

C.) Slowly increase the **pressure** to the gun until the **fan spray pattern** of **ZC-015** is fully developed and even and there are no **fingers** or **tails** on the edges of the spray equipment. If you hear a **harsh hissing noise** or see **fogging** in the spraying of the **ZC-015**, then the **pressure** of the **air assisted spray gun** is **too high**. None of these observations should occur because **thin materials** like **ZC-015 atomize** very easily.

D.) Set the **pump ratio** of the equipment to a range of **60:1 to 30:1**.

E.) Setup the following parts for the **airless spray equipment** below.
***Displacement Pump With A Positive Piston Type**
***Stainless Steel Filter With A High Pressure With 200-300 mesh element**

F.) Maintain your distance of the gun from the surface as the distances between **air assisted spray guns** and other spray methods can vary. A good distance to follow for **air assisted spray guns** is about **12" or more**. If you spray apply **ZC-015** at a distance closer than **12"**, then there will be a heavy buildup of **ZC-015**, tiger stripping of material from the surface where the **ZC-015** was applied, and a variation in the gloss of the **ZC-015**.

G.) Consider the passing speed of **ZC-015** because the output of **ZC-015** from **air assisted spray guns** can vary between other spray methods. Therefore, you may need to move faster or slower than other spray methods, such as **HVLP guns**.

H.) The **ZC-015** should be spray applied as a **smooth continual pass** with a **50% overlap**.

3.) Airless Spray Setup

Airless Spray Equipment



A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.

B.) For **pressure settings**, use the **lowest pressure** possible so that **ZC-015** can be spray applied as a **clean fan** with the width of the spray being shaped like **a fan**. The setup of **airless spray equipment** varies based on the size and type of gun that is being used but a good starting point for the **pressure** of the **airless spray gun** should be around **900-1200 PSI**.

C.) Slowly increase the **pressure** to the gun until the **fan spray** pattern of **ZC-015** is fully developed and even and there are no **fingers** or **tails** on the edges of the spray equipment. If you hear a **harsh hissing noise** or see **fogging** in the spraying of the **ZC-015**, then the **pressure** of the **airless spray gun** is **too high**. None of these observations should occur because thin materials like **ZC-015** atomize very easily.

D.) Set the **pump ratio** of the equipment to a range of **60:1 to 30:1**.

D-5015NS/ZC-015 Instruction Manual

Methods For Applying D-5015NS/ZC-015 (Continued From Page 5):

3.) Airless Spray Setup (Continued From Page 5)

E.) Setup the following parts for the **airless spray equipment** below.
***Displacement Pump With A Positive Piston Type**
***Stainless Steel Filter With A High Pressure With 200-300 mesh element**

F.) Maintain your distance of the gun from the surface as the distances between **airless spray guns** and other spray methods can vary. A good distance to follow for **airless spray guns** is about **12" or more**. If you spray apply **ZC-015** at a distance closer than **12"**, then there will be a heavy buildup of **ZC-015**, tiger stripping of material from the surface where the **ZC-015** was applied, and a variation in the gloss of the **ZC-015**.

G.) Consider the passing speed of **ZC-015** because the output of **ZC-015** from **airless spray guns** can vary between other spray methods. Therefore, you may need to move faster or slower than other spray methods, such as **HVLP guns**.

H.) The **ZC-015** should be spray applied as a **smooth continual pass** with a **50% overlap**.

4.) ZC-015 5 Gallon (18.9 Liter) Cart Sprayer Setup



A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.

B.) For **pressure settings**, use the **lowest pressure** possible so that **ZC-015** can be spray applied as a **clean fan** with the width of the spray being shaped like **a fan**.

C.) Slowly increase the **pressure** to the gun until the **fan spray** pattern of **ZC-015** is fully developed and even and there are no **fingers** or **tails** on the edges of the spray equipment. If you hear a **harsh hissing noise** or see **fogging** in the spraying of the **ZC-015**, then the **pressure** of the **5 Gallon (18.9 Liter) Cart Sprayer** is **too high**. None of these observations should occur because thin materials like **ZC-015** atomize very easily.

D.) Set the **pump ratio** of the equipment to a range of **60:1 to 30:1**.

E.) Setup the following parts for the **5 Gallon (18.9 Liter) Cart Sprayer** below.
***Displacement Pump With A Positive Piston Type**
***Stainless Steel Filter With A High Pressure With 200-300 mesh element**

F.) Maintain your distance of the gun from the surface as the distances between **5 Gallon (18.9 Liter) Cart Sprayer** and other spray methods can vary. A good distance to follow for **5 Gallon (18.9 Liter) Cart Sprayers** is about **12" or more**. If you spray apply **ZC-015** at a distance closer than **12"**, then there will be a heavy buildup of **ZC-015**, tiger stripping of material from the surface where the **ZC-015** was applied, and a variation in the output of **ZC-015**.

G.) Consider the passing speed of **ZC-015** because the output of **ZC-015** from **5 Gallon (18.9 Liter) Cart Sprayers** can vary between other spray methods. Therefore, you may need to move faster or slower than other spray methods, such as **HVLP guns**.

H.) The **ZC-015** should be spray applied as a **smooth continual pass** with a **50% overlap**.

D-5015NS/ZC-015 Instruction Manual

Methods For Applying D-5015NS/ZC-015 (Continued From Page 6):

5.) Electro-Static Spray Gun Setup

Electro-Static Spray Gun



A.) Minimize the flow of **ZC-015** for the required **coating speed** and **film thickness**.

B.) Minimizing the target distance of spraying **ZC-015**.

C.) Ensure that the **ZC-015** to be sprayed has a very high **resistivity** of at least **>1 mega-ohm**.

D.) Attach charging unit to the gun and object to be sprayed with **ZC-015**.

E.) Gradually increase in-line **air pressure** so that the spray provides proper **ZC-015** build at the required **coating speed** and ensure that the pressure does not exceed **100 psi**.

F.) Fluid pressure is typically **400-800 psi** so make sure it is set to that **psi range**.

G.) Turn on **charging unit** and begin spraying **ZC-015**.

D-5015NS/ZC-015 Product Pictures and Zip-Chem® Product Packaging Part Numbers:

ZC-015
*Case of 12 of 16 fl oz (473 mL) Aerosols **(D-5015NS)-007670**
*Case of 4 each Gallon (4 each of 8.8 Liter) Cans **(ZC-015)-009413**
*5 Gallon (18.9 Liter) Pails **(ZC-015)-002089**
*55 Gallon (208 Liter) Drum **(ZC-015)-002086**
*Specialized forms of packaging available upon request

D-5640NS/ZC-640
*Case of 12 of 16 fl oz (473 mL) Aerosols **(D-5640NS)-002070**
*Case of 4 each Gallon (4 each of 8.8L) Cans **(ZC-640)-009430**
*5 Gallon (18.9 Liter) Pails **(ZC-640)-002155**
*55 Gallon (208 Liter) Drum **(ZC-640)-108181**
*Specialized forms of packaging available upon request **(ZC-640)**

D-5026NS/ZC-026
*Case of 12 of 16 fl oz (473 mL) Aerosols **(D-5026NS)-007669**
*Case of 4 each Gallon (4 each of 8.8 Liter) Cans **(ZC-026)-009415**
*5 Gallon (18.9 Liter) Pails **(ZC-026)-002095**
*55 Gallon (208 Liter) Drums **(ZC-026)-002096**
*Special packaging upon request

Zip-Chem® Aerosol Trigger Sprayer
***010040**

Spray Equipment	Curing Devices	Protective Clothing

Sur-Prep® 3160
*Case of 12 of 16 fl oz (473 mL) Aerosols-**010938**
*Case of 4 each Gallon (4 each of 8.8L) Cans-**008578**
*5 Gallon (18.9 Liter) Pails-**008579**
*55 Gallon (208 Liter) Drum-**008580**
*Case of 6 Canisters of Towelettes-**100026**
*Case of 100 Individual Towelettes-**011844**
*Specialized packaging forms for customers

Sur-Prep® 3167
*Case of 12 of 16 fl oz (473 mL) Aerosols-**103765**
*Case of 4 each Gallon (4 each of 8.8L) Cans-**103762**
*5 Gallon (18.9 Liter) Pails-**103763**
*55 Gallon (208 Liter) Drum-**103764**
*Specialized forms of packaging available upon request

Gloves	Protective Eyewear	Ventilation Equipment	Vacuum

Masking Tape	Tin Foil	Proper Mask	Lighting Equipment

Spill Containment Vessels and Other Proper Devices For Collecting Material Spills and Overruns

Rags, Cloths, Towels, Aliphatic Naphtha Based Wipes or the Equivalents, and Other Proper Wiping Devices

Formit® Wands (12 Assemblies Per Package)
***Formit®-18-Fan-006224**
***Formit®-18-180-006226**
***Formit®-18-360-006227**
***Formit®-18-STD-FOG-008352**
***Formit®-18-90-FOG-008353**
***Formit®-29-360-101321**
***Formit®-36-360-009131**
***Formit®-48-360** with metal sleeve-**009132**
***Formit®-48-360** without metal sleeve-**100424**
***Formit®-48-Fan-008460**
***Formit®** Sample Pack (3 each of **Formit®-18-Fan**, **Formit®-18-180**, **Formit®-18-360**, **Formit®-18-STD-FOG-100107**

D-5015NS/ZC-015 Instruction Manual

D-5015NS/ZC-015 Product Pictures and Zip-Chem® Product Packaging Part Numbers (Continued From Page 7):



***1 Gallon (3.8 Liter) Cans**



***16 Fluid Ounce (473 mL) Aerosol**

Sur-Prep® 3160 NSN: 6850-01-633-9843 (16 fl oz (473 mL) Aerosol); **D-5640NS NSN:** 8030-01-597-6958 (16 fl oz (473 mL) Aerosol)

Formit® NSN's: 4730-01-612-9914, NSN: 4730-01-661-8773 (**Formit®-18-Fan**); 6850-01-492-2942 (**Formit®-18-360**); 4730-01-632-0156 (**Formit®-18-STD-FOG**); 1560-01-658-8943 **(with metal sleeve),** 4730-01-659-5461 **(without metal sleeve)** (**Formit®-48-360**); 4730-01-632-0157 (**Formit®-48-Fan**)

For application questions regarding **D-5015NS/ZC-015**, contact **Zip-Chem® Aviation Products** at **(1) 408 782 2335** or **zipchem@addevmaterials.com**.