THE DURANAR® ADS COATING SYSTEM

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APPLICATION GUIDELINES
FOR TOUCH-UP AND REPAIR OF FACTORY-APPLIED COIL & EXTRUSION PVDF PAINT FINISHES,
USING THE DURANAR ADS AIR DRY COATING SYSTEM

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INTRODUCTION

DURANAR® ADS coatings are one-component fluoropolymer based air-dry coatings, specially designed for touch-up and repair of factory-applied painted metal surfaces. Formulated with durable pigmentation, *Duranar* ADS coatings provide extraordinary performance characteristics comparable to factory-applied PVDF/FEVE coatings, for long term chalk and fade resistance in the harshest of weather conditions.

Duranar ADS coatings can be applied as a single coat over most painted surfaces with only a light scuff-sanding to maximize its mechanical bond. In some painting scenarios, a primer tie-coat may be required to obtain satisfactory adhesion of the *Duranar* ADS topcoat over some surfaces. Proper judgment should be followed in these instances to confirm the appropriate surface preparation for your project.

For small touchup, the product can be brushed-on using an artist's brush or dauber pen. Air spray is recommended for larger repair areas. Rolling or brushing does not provide a smooth film due to the drying speed of the product.

PRECAUTIONS

Duranar ADS coatings should be used only by experienced/trained applicators in a factory-controlled environment. These coatings must be properly mixed, reduced, and applied according to the product instructions, under tightly controlled conditions to ensure the best possible results.

Due to changing governmental legislation regarding the emission of volatile organic solvents (VOC), the use of *Duranar* ADS coatings in certain regions is regulated and may require a permit prior to its use. Before proceeding, contact the local authorities to determine the local ordinances.

After the job is completed, any remaining materials must be disposed of properly and in accordance with local regulations. This includes unused paint, thinners, cleaners, and any potentially hazardous debris connected with the repair.

AVAILABILITY

Duranar ADS coatings are exclusively distributed by Nanochem Technologies, Inc. in Elkhart, IN. Phone 574-970-2436 or go to DuranarADS@NanochemTechnologies.com for product information and order processing.

PAINTING SCENARIOS

The following instructional procedures cover the most common types of repair situations in the field. These are intended to be guidelines and specific scenarios may require modifications to these procedures. For this reason, *Duranar* ADS coatings should be applied by experienced applicators only.

1. SCRATCHES

It is always best to minimize the area being repaired. This is especially important when repairing metallic colors containing aluminum flakes or pearlescent colorants. These types of colors are extremely difficult to obtain a good match between a touchup and the factory-applied finish. The use of a template can help minimize dry spray halo.

Clean the area to be repaired so it is free from dirt, oil and fingerprints. Use a mild detergent and a soft cloth. Rinse well to ensure no residue is left on the surface that might interfere with adhesion/appearance of the air-dry repair. Allow the repair area to dry thoroughly prior to painting.

Apply the *Duranar* ADS coatings using a small brush or dauber pen. DO NOT REDUCE THE VISCOSITY: use it full-body. Feather in the edges to blend the repair with the surrounding area.

See the ***Duranar* ADS XL CLEAR COAT** section for information on determining when a clear topcoat is required over certain basecoat colors.

2. NEWLY PAINTED METAL

Recently painted metal is often repainted to repair damage from a post-forming operation. To achieve adequate adhesion, the painted surface must be roughed to reduce the gloss and maximize the mechanical adhesion of the air-dry repair.

Roughen the entire surface with an abrasive pad or a 400 grit or finer sand paper. Do not be too aggressive with the sanding or the scratches may telegraph through the repaired area.

Clean the area to be repaired so it is free from sanding dust, oil, waxes , lubricants and fingerprints. Use a mild detergent and a soft cloth. Rinse well to ensure no residue is left on the surface that might interfere with adhesion/appearance of the air-dry repair.

Apply the *Duranar* ADS coating using spray equipment. See **APPLICATION EQUIPMENT** section for details. Apply the coating according to the instructions in the **THINNING AND APPLICATION** section. Use multiple light passes to build the film and to avoid sagging. Apply the coating to obtain complete hiding and acceptable appearance to the surrounding area. *Duranar* ADS coatings can be recoated as needed to achieve the desired results. At an ambient temperature range of 50F to 70F, allow one hour dry time before applying a second coat. Recoat time will vary depending on humidity conditions. Do not recoat if the first coat is still wet to the touch or wrinkling/slumping may occur.

See the ***Duranar* ADS XL CLEAR COAT** section to determine if a clear topcoat is required over the base coat color.

In some instances, simply scuff-sanding may not be enough to provide adequate surface preparation for adhesion. A tie-coat may be required: See **TIE-COATS/PRIMERS SELECTION** section for details including adhesion testing procedure**.**

3. UNPAINTED METAL SURFACES

Bare metal must be cleaned, to remove all surface corrosion, and pretreated with a field-applied conversion coating to produce a bright surface appearance. This surface preparation will help maximize paint adhesion and surface protection from corrosion. Contact your local metal surface pretreatment supplier for their recommendations.

Prime the surface with Nanochem Chromated Yellow Primer or Non-Chrome White Primer. See **TIE-COATS/PRIMERS SELECTION** section for details.

Apply the *Duranar* ADS coatings using spray equipment. See **APPLICATION EQUIPMENT** section for details. Apply the coating according to the instructions in the **THINNING AND APPLICATION** section. Use multiple light passes to build the film and to avoid sagging. Apply the coating to obtain complete hiding and acceptable appearance to the surrounding area. *Duranar* ADS coatings can be recoated as needed to achieve the desired results. At an ambient temperature range of 50F to 70F, allow one hour dry time before applying a second coat. Recoat time will vary depending on humidity conditions. Do not recoat if the first coat is still wet to the touch or wrinkling/slumping may occur.

See the ***Duranar* ADS XL CLEAR COAT** section to determine if a clear topcoat is required over the base coat color.

THINNING AND APPLICATION

Mix thoroughly before use. Optimum appearance properties are obtained when the products are sprayed between 50 to 100°F (10 to 38°C).

Reducing Solvents for the *Duranar* ADS topcoat:

CAUTION: All solvents are not compatible with *Duranar* ADS coatings. Only the following solvent blends can be used to reduce *Duranar* ADS coatings for spray application. Use the following guide as a general rule:

- **ADS-SLOW**: This is a slow solvent blend for use when surface temperatures are above 70°F (21°C) & the relative humidity is >60%

- **ADS-FAST**: This is a faster solvent blend for use when surface temperatures are below 70°F (21°C) & the relative humidity is <60%

Start with a blend of two parts *Duranar* ADS topcoat to one part reducer. Additional reducing solvent can be added to further smooth out the paint finish. Apply to a dry, clean surface. Apply only when air, product and surface temperatures are above 50°F (10°C) and at least 10°F (-12°C) above the dew point. At temperature outside of this range, condensation may form on the surface being painted which can impact paint appearance and adhesion. See **DEW POINT CALCULATION CHART** section.

Reducing Solvents for the Nanochem Primers:

The Chromated Yellow Primer & Non-Chrome White Primer can be reduced with any of the following solvents at a ratio of 1-1/2 parts primer to 1 part solvent:

MEK
Toluene
MIBK
Xylene

The above solvents are listed in descending order of evaporation rate. The final choice will depend on surface and air temperature and relative humidity conditions. See the Product Data Sheet on these primers for full product details.

Application & Curing Conditions:

A multiple, light pass spraying technique to slowly build the film thickness is recommended to prevent sagging and allow for proper drying. Add more reducing solvent, or switch to a slower, reducing blend and/or increase fluid delivery to smooth out the paint finish.

Under normal conditions, 77°F (25°C) @ 50% relative humidity, the finish will be dry to touch in 60 minutes, dry to handle and recoat in four hours. Final cure is obtained within 24 hours. Dry times will vary based on temperature and humidity conditions.

Duranar ADS coatings can be forced dried to reduce time to reach a fully cured coating, ready to pack and ship. A baking temperature up to 200°F (93°C) for 30 minutes is sufficient enough to fully cure the coating system. However, be aware that the finish must be allowed to air-dry at room temperature long enough for it to fall within the gloss range before force curing; otherwise, the gloss will be fixed at that point it was force dried and it will not drop any lower during or after force drying.

Any unused and reduced *Duranar* ADS paint can be saved for future use if stored properly in sealed containers. Stir well before using to break down any false body. It is not necessary to add more reducer solvent to paint that was reduced for application previously.

Duranar ADS XL CLEAR COAT

UC119780 *Duranar* ADS XL Clear Coat is required over all basecoat colors starting with the product code numbers BN3, BN9, codes ending in XL, or as specified by Nanochem Technologies, Inc. This includes all basecoat colors that contain aluminum flake and certain deep-tone solid colors such as bright reds and

greens. Consult the Product Data Sheet of the specific product code you are using to confirm if clear coat is required.

For repairing scratches, spot touch-ups, or the painting of small accessory parts, the *Duranar* XL Clear Coat can be omitted. Proper judgment should be followed when deciding if XL Clear Coat is necessary to maintain acceptable long term color uniformity over the entire project.

NOTE: Metallic finishes will shift slightly darker when the *Duranar* ADS XL clear coat is applied on top. Consideration must be given to this degree of shift when matching the color to the surrounding factory-applied finish, to get the best possible visual match.

APPLICATION EQUIPMENT

Duranar ADS coatings can be applied with a variety of spray equipment.

Recommended Equipment:

- Conventional air atomizing spray guns with a 35-90 PSI pressure range.
- Aerosol can application: **NOTE**: *Duranar* ADS coatings are incompatible with most propellants used in aerosol can packages. For this application, use a disposable spray gun with a separate aerosol charge can. Contact Nanochem Technologies, Inc. for information on this equipment.
- HVLP (High Volume/Low Pressure) spray set at 10 PSI maximum pressure.
- Airless spray with up to 3000 PSI hydraulic pressure.

Rolling or brushing is not recommended, except for small touch-up using an artist's brush or dauber pen, due to the drying speed of the paint system.

TIE-COATS/PRIMERS SELECTION

There are no set repair procedures that cover all the possible substrate scenarios that may arise. When painting bare metal, a determination must be made concerning the method of cleaning, chemical treating and priming of the area

prior to topcoat application. This usually depends on the size of the repair area. The proper surface preparation will help maximize paint adhesion and provide surface protection from corrosion. Contact your local metal surface pretreatment supplier for their recommendations.

There are two options for primers to use under *Duranar* ADS topcoats:

- Nanochem Chromated Yellow Primer
- Nanochem Non-Chrome White Primer

The choice of which primer to use depends on substrate composition and its propensity for corrosion under normal weather conditions. See the **THINNING & APPLICATION** section for instructions on the reduction and application of these two primers.

For surfaces with an intact paint finish showing no exposed substrate metal, a roughening of the surface followed by a wipe down with soap and water may be all that is needed to get good adhesion with a *Duranar* ADS topcoat. An adhesion test should be preformed after 24 hours dry time to confirm. Use Scotch 610 or Permacel 99 brand tape to perform a non-destructive adhesion tape test. Be aggressive in your testing. If the air-dry finish can be indented with a fingernail, the *Duranar* ADS coatings are not completely dry and will need more time to post-cure before performing the test.

If the *Duranar* ADS topcoat fails the taped adhesion test, a tie-coat is required. Use either of the air-dry primers listed above in this section. Complete instructions for use of these primers as tie-coats are listed in the Product Data Sheet for each. It is still necessary to confirm the adhesion of the complete *Duranar* ADS coatings system over the tie-coat primer. See the adhesion test procedure above in this section.

TROUBLESHOOTING

Problem	Cause	Fix
APPLICATION:		
Cobwebbing out of the spray gun	High viscosity	Add more reducing solvent
Sagging	Applying wet film too quickly	Use multiple light passes to build film
APPEARANCE:		
Looks like sandpaper	Hot surface temperature	Add slower reducer solvent or wait for surface to cool down
Looks ropey or has an orange peel	High viscosity	Add more reducing solvent
High gloss	High film build; Product was force-dried too soon following application	Use multiple light passes to build film; Allow gloss to fall within range before force drying
Non-uniform low gloss	Blushing due to high humidity; Uneven film thickness	Use the slower reducing solvent: ADS-SLOW Resume spraying when relative humidity decreases
MISCELLANEOUS		
False body consistency	Paint was stored at low Temperatures; Paint was previously reduced	Mix paint thoroughly & raise temperature above 50F before using

Dew Point Calculation Chart (Fahrenheit)

at 30 Hg Barometric Pressure

Ambient Air Temperature °F

% Relative Humidity	20	30	40	50	60	70	80	90	100	110	120
90	18	28	37	47	57	67	77	87	97	107	117
85	17	26	36	45	55	65	75	84	95	104	113
80	16	25	34	44	54	63	73	82	93	102	110
75	15	24	33	42	52	62	71	80	91	100	108
70	13	22	31	40	50	60	68	78	88	96	105
65	12	20	29	38	47	57	66	76	85	93	103
60	11	19	27	36	45	55	64	73	83	92	101
55	9	17	25	34	43	53	61	70	80	89	98
50	6	15	23	31	40	50	59	67	77	86	94
45	4	13	21	29	37	47	56	64	73	82	91
40	1	11	18	26	35	43	52	61	69	78	87
35	-2	8	16	23	31	40	48	57	65	74	83
30	-6	4	13	20	28	36	44	52	61	69	77

Dew Point: The temperature at which moisture will condence on the surface. No coatings should be applied unless the surface temperature is a minimum of 5°F above this point. Temperature must be maintained during curing.

Example: If air temperature is 70°F and relative humidity is 65%, the dew point is 57°F. No coating should be applied unless the surface temperature is 62°F minimu.