

CHEM-PLATE INDUSTRIES, INC.

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RoHS Compliant Passivations and Top Coat Overview

There are two methods to achieve corrosion resistance using **RoHS Compliant** passivations:

- Passivation Alone
- Passivation Plus Topcoat

The Topcoats serve several purposes:

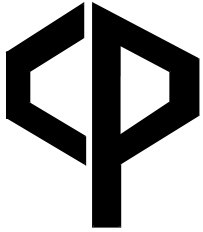
- 1) They protect the passivation from corrosion when they are scratched, because RoHS Compliant passivations are not self-healing as were the old hexavalent chrome passivations.
- 2) They add significantly to the corrosion protection, in general.
- 3) Impart compliant Torque/Tension (coefficient of friction) qualities to the fasteners.

Also note that Trichromax[®] Unicote usually does not require a topcoat, it is the exception to the rule because Chem-Plate has learned how to protect this passivation from scratches *without* a topcoat.

ISO 9001:1994 QS-9000:1998 A2LA Lab#: U4216A [TS 16949](#)

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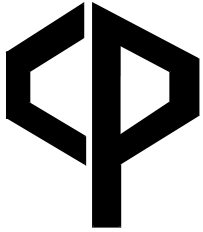
Revised: 1/03/07



TOPCOAT DESCRIPTIONS

TOPCOAT	TYPE	TORQUE/TENSION	COMMENTS
(XXX) 311 TF Sealer	Silicate	Good	Prefix will define use (Ebonize 311TF Sealer NoKRoM Y 311TF, Trichromax 311TF, etc.)
Ebonize HCR TF Sealer	Silicate/Ethylene	Excellent	HCR TF is free of Teflon [®] (PTFE) (Registered to E.I. Du Pont de Nemours, Inc.) and can be made as HCR SF (Silicate Free), if required.
Trichromax[®] CD SEALER 25 TSF	Ethylene	Excellent	Silicate Free/Teflon Free
BK 100/6138 TSF Topcoat	Epoxy	Same as Hex Finishes	Used also for Nissan and is glossy
BK 100/4205 SF Topcoat	Epoxy	Excellent	Used also for Kodak and is mat
ML Lube Topcoat	Silicate/Teflon	Excellent	Approved for GMW 3044 Suffix G
CHEM-LUBE TOPCOAT TSF	Polypropylene Wax	Excellent	Conforms to GMW 3044 WZ 100/101

Please note, all CHEM-PLATE Topcoats on this page will, generally, not fill recesses.

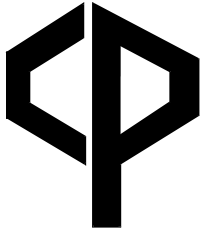


**HIGH CORROSION RESISTANT
CLEAR ZINC (0.0003" Nominal)
PASSIVATIONS**

NAME	TOPCOAT	WHITE	RED	TORQUE/TENSION	COMMENT
Trichromax[®] 120 Unicote Clear	None	120	480	Exhibits same torque/tension properties as the old hex chrome finishes.	No topcoat to interfere with patches or printing.
Trichromax[®] 120 Unicote Clear TSF	Trichromax [®] CD Sealer 25 TSF	120	480	Has excellent Torque/Tension Properties.	Contains neither Silicate nor Teflon [®] (PTFE).
Trichromax[®] Unicote Clear 3044	ML Lube Topcoat	120	480	GMW 3044 SUFFIX G Approved for Torque/Tension	Contains both Silicate and Teflon [®] (PTFE)
Trichromax[®] Unicote Clear Ultra (0.0005" MIN.)	Trichromax [®] 311 TF Sealer	500	1,000	Has very good Torque/Tension properties	Extremely highly corrosion resistant and cheaper than zinc/nickel

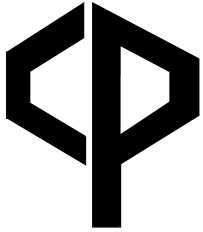
NOTE:

All Good/Excellent Torque/Tension designations will apply to all automotive applications.



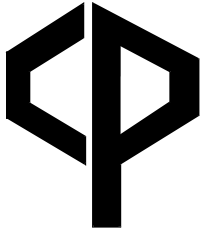
**HIGH CORROSION RESISTANT
YELLOW ZINC/DYES (0.0003" Nominal.)
PASSIVATIONS**

NAME	TOPCOAT	TORQUE/TENSION	WHITE	RED	COMMENT
NoKRoM[®] Y Z	NoKRoM [®] 311TF Sealer	Has very good Torque/Tension properties	120	480	Color is very similar to the old hexavalent yellow coatings. Contains <u>NO Chrome</u> of any kind and is <u>NOT</u> a dyed finish
Trichromax[®] UnicoteYZ	Trichromax [®] CHEM- LUBE TOPCOAT TSF	Has excellent Torque/Tension properties.	120	480	Color resembles that of old hexavalent yellow coatings. Must be applied after bake. Contains a dye and will not rub off easily
Trichromax[®] Bakable Y	None	Has the same Torque/Tension properties as the old hexavalent systems. The Torque/Tension can be made excellent with an additionally coating of CHEM-LUBE TOPCOAT TSF	240	480	Can be applied before baking, saving money. Color yellow/green and can rub off. Coating with CHEM-LUBE TOPCOAT TSF to prevent rub off, which will raise the cost.
Trichromax[®] Green/Blue/Red	Optional		120	480	Normally, no topcoat is applied. If Torque/Tension or rub off are issues CHEM-LUBE TOPCOAT TSF can be applied.



**HIGHLY CORROSION RESISTANT
BLACK ZINC (0.0004" Nominal)
PASSIVATIONS**

NAME	TOPCOAT	TORQUE/TENSION	WHITE	RED	COMMENT
TRICHROMAX® EBONIZE Z	Ebonize 311 TF Sealer	Has very good Torque/Tension properties.	120	480	Very Glossy deep rich black.
TRICHROMAX® EBONIZE HCR	Ebonize HCR TF Sealer	Has excellent Torque/Tension properties.	240	1,000	Glossy deep finish.
TRICHROMAX® EBONIZE Z NISSAN	BK 100/6138 TSF Topcoat	Same as the old hex coating systems. Can be modified if required.	168	480	Glossy black very tough finish.
TRICHROMAX® EBONIZE Z KODAK	BK 100/4205 SF Topcoat	Has excellent Torque/Tension properties.	168	480	Mat black very tough finish.
TRICHROMAX® EBONIZE Z E-COAT	Anodic Epoxy E- Coat TSF	Has the same Torque/Tension properties as the old hexavalent coatings. Can be modified if required.	168	480	Mat finish.



ZINC NICKEL PASSIVATIONS (0.0003” – 0.0005”)

NAME	COLOR	TYPE OF Zn/Ni	TOPCOAT	TORQUE /TENSION	WHITE	RED	COMMENTS
Trichromax® Ebonize ZN X	Black	Alkaline	Cathodic E-Coat (Processed Off-Site)	Excellent	240	1,000	Glossy finish –used primarily for Ford WSS M21P44A3
Trichromax® Ebonize ZN S61 (Whyco Finnish)	Black	Alkaline	Anodic E-Coat TSF	Same as the old hex coating systems. Can be modified if required.	240	480	Matt finish Used for Ford S61-A2 Torque Tension suitable for Japanese specs.
Trichromax® Ebonize ZN 6138	Black	Acid	BK 100/6138 TSF	Same as the old hex coating systems. Can be modified if required.	240	1,000	Glossy tough finish for GM 6138M.Torque Tension suitable for Japanese specs
Trichromax® Ebonize ZN 4205	Black	Acid	BK 100/4205 SF	Excellent	240	1,000	Matt tough finish for GMW 4205.
Trichromax® Unicote Clear 120 ZN	Clear	Acid	Trichromax Unicote	Same as the old hex coating systems. Can be modified if required.	120	1,000	Clear finish. May be modified with ML Lube if lower torque/tension is needed.
NoKRoM® Y ZN	Yellow	Acid	NoKRoM Y 311 TF Sealer	Good	120	1,000	Pleasant yellow iridescent color. Contains <u>NO CHROME</u> at all.