
SurTec 680 Chromitierung

Tests and Results of Automotive Industries and Suppliers

Companies:

- Audi
- Bundy (UK) Ltd.
- Continental Teves
- General Motors / Opel
- Lucas
- Major Car Supplier in Japan
- P&J Industries / Lucas/Varity
- Toyota
- Volkswagen

Type of Parts	screws
Layer	cyanide free alkaline zinc/nickel, ca. 8 µm, 14-15 % Ni
Chromiting	70 °C, 12,5 vol%, pH 1,9, 70 s
Topcoat	without topcoat and with SurTec 555
Colour	without topcoat: dark, yellow-blue, slightly iridescent, slightly dull with SurTec 555: colourless, like metal
Test and Results	Test according to TL 244 (heat treatment 24 h 120 °C) test passed, after 720 h salt spray test: without topcoat start WR SurTec 555 hazy surface
Conclusion Customer	Requirements of TL 244 are fulfilled

Type of Parts	break tube parts
Layer	acid zinc ca. 8 µm
Chromiting	60 °C, 12,5 vol%, pH 2,0, 60 s
Topcoat	without topcoat and with SurTec 552
Colour	without topcoat: pale, greenish iridescent, brilliant with SurTec 552: colourless, brilliant, like metal
Test and Results	Test according to DIN 50021 SS 186 h 0 % WR 360 h 0 % WR 480 h WR and black staining, 0 % RR
Conclusion Customer	Requirements of the customer are fulfilled

Type of Parts	break parts
Layer	acid zinc, ca. 8 µm, rack process
Chromiting	60 °C, 12,5 vol%, pH 1,8-2,0, 45 s
Topcoat	without topcoat
Colour	pale, greenish iridescent, brilliant
Test and Results	Test according to DIN 50021 SS without and with heat treatment: 4 and 24 h at 130 °C, 4 and 24 h at 180 °C all tested cases have been compared with a yellow chromating.

Conclusion Customer

In comparison to a yellow chromating, SurTec 680 was found to be better in all tested cases.

Type of Parts	zinc dyecast
Chromiting	60 °C, 12,5 vol%, pH 1,8-2,0, 60 s; applicated directly onto the dyecast
Topcoat	without topcoat
Colour	dark, green-grey
Test and Results	Salt spray test according to GMI 60 206-H-stage 3 test passed: 144 h <5 % WR

Conclusion Customer

SurTec 680 can be used for passivating zinc dyecast directly.

Furthermore, General Motors has specified SurTec 680 as a chromium(VI)free passivation for zinc and zinc alloys in **GME 00252, clause 9.3.4.1, Type 8**

Type of Parts	break parts			
Layer	acid zinc, ca. 8 µm, rack process			
Chromiting	60 °C, 12,5 vol%, pH 1,8-2,0, 60 s			
Topcoat	without topcoat			
Colour	pale, greenish iridescent, brilliant			
Test and Results	Test according to DIN 50021			
	without heat treatment			
	2 h 200 °C			
	144 h	0 % WR	72 h	0 % WR
	240 h	5-10 % WR	240 h	10-15 % WR

Conclusion Customer

In comparison to a yellow chromating, SurTec 680 was found to be better in all tested cases.

Type of Parts	car parts				
Layer	alkaline cyanide free and cyanide zinc ca. 8 µm, barrel and rack				
Chromiting	60 °C, 12,5 vol%, pH 2,0, 60 s				
Topcoat	without topcoat				
Colour	greenish iridescent, brilliant				
Test and Results	<p>Test according to DIN 50021 SS</p> <table><tr><td>without heat treatment</td><td>30 min 200 °C</td></tr><tr><td>200 h start WR</td><td>200 h start WR</td></tr></table> <p>all tested cases have been compared with a yellow chromating</p>	without heat treatment	30 min 200 °C	200 h start WR	200 h start WR
without heat treatment	30 min 200 °C				
200 h start WR	200 h start WR				

Conclusion Customer

In comparison to a yellow chromating, SurTec 680 was found to be better in all tested cases.
SurTec 680 runs in a pilot plant and shall replace yellow chromating in 2000.

Type of Parts	brake parts
Layer	zinc-carbon
Chromiting	60 °C, 12,5 vol%, pH 1,9, 60-80 s
Topcoat	without topcoat
Colour	green/yellow/red, iridescent, brilliant
Test and Results	Salt spray test according to ASTM B-117 336 h start WR 480 h 5 % WR 1000 h <25 %WR, 0 % RR

Conclusion Customer

The layer sytem zinc-carbon + SurTec 680 was tested against the system zinc/nickel + yellow chromating + top coat and was found to be equally good.

Type of Parts	test plates and various car parts
Layer	zinc
Chromiting	60 °C, 12,5 vol%, pH 1,8-2,0, 60-80 s
Topcoat	without topcoat
Colour	greenish, iridescent, brilliant
Test and Results	<p>Salt spray test; the parts have been artificially damaged by crosscut; all tests have been compared with yellow chromating and other trivalent chromating solutions + top coat.</p> <p>SurTec 680 was found to be as good as a yellow chromating and at least as good as trivalent chromating + top coat</p>
Conclusion Customer	<p>SurTec 680 is the most favourite alternative for yellow chromating. Especially, since it does not need any top coat for the demanded protection against corrosion.</p>

Type of Parts	various screws
Layer	acid zinc, barrel process, 8.4-9.5 µm
Chromiting	60 °C, 12,5 vol%, pH 1,8-2,0, 60-80 s
Topcoat	without topcoat
Colour	pale, greenish iridescent, brilliant
Test and Results	Test according to TL 217, test passed 96 h start WR 168 h 10 % WR 288 h start RR
Conclusion Customer	Requirements of TL 217 are fulfilled

Type of Parts	screws
Layer	cyanide free alkaline zinc/nickel, ca. 8 µm, 14-15 % Ni
Chromiting	70 °C, 12,5 vol%, pH 2,0, 30-60 s
Topcoat	without topcoat
Colour	dark, yellow-blue, slightly iridescent, slightly dull
Test and Results	Test according to TL 244 (heat treatment 24 h 120 °C) test passed: 120 h 0 % WR 360 h <5 % WR 720 h 30 % WR, 0 % RR

Conclusion Customer

Requirements of TL 244 are fulfilled

Type of Parts	screws
Layer	cyanide zinc, ca. 8 µm, barrel process
Chromiting	60 °C, 12,5 vol%, pH 2,0, 30-60 s
Topcoat	without topcoat
Colour	greenish iridescent, brilliant
Test and Results	Salt spray test according to DIN 50021 SS
	without heat treatment
	24 h 120 °C
	8 h 200 °C
	48 h 0 % WR
	48 h 0 % WR
	48 h 0 % WR
	144 h 0 % RR
	144 h 0 % RR
	144 h 0 % RR

Conclusion Customer

Requirements of TL 217 are fulfilled.
Additionally, SurTec 680 was found to be more stable to temperature treatment than a yellow chromating.