

Evaluating VpCI-325 and Castrol Oil for Protection of Taurus Gun Barrels

Background: Forjas Taurus started began as a small tool manufacturer over 60 years ago in Porto Alegre, Brazil. Since then making their first revolver in 1941, Taurus has become a world leader in the manufacture of small arms. Taurus would like to compare VpCI-325 to the Castrol oil they currently use for rust prevention

Purpose: Compare the corrosion protection of VpCI-325 and Castrol Safe Coat oil on gun barrels manufactured by Forjas Taurus.

Method: ASTM D 1748 Humidity Cabinet
ASTM B 117 Salt Fog Cabinet

Materials: 2 – Gun barrel pieces, provided by Taurus
Castrol ‘Safe Coat DW-80’, provided by Taurus
VpCI-325

Procedure: The following procedure was used:

- 1) Two small gun barrel pieces arrived and were inspected.
 - a. Pieces had a slight oily residue on them. Both pieces were cleaned with methanol.
- 2) After methanol wipe, pieces were dipped, one in the Castrol oil currently used by Taurus, and the other in VpCI-325.
- 3) After oil dip, pieces were hung to dry overnight.
- 4) Both pieces were then placed in ASTM D 1748 humidity cabinet.
- 5) Pieces were visually inspected periodically.
- 6) After 792 hours, pieces were removed from ASTM D 1748 humidity cabinet.
- 7) Pieces were visually inspected.
- 8) Pieces were then cleaned with methanol, recoated, and hung to dry overnight.
- 9) The pieces were then placed in ASTM B 117 Salt Fog Cabinet.
- 10) After 96 hours, pieces were removed from salt fog.
- 11) Pieces were visually inspected and photographed.

Results:

ASTM D 1748 Humidity Cabinet

Oil Coating	Time to Corrosion (Hours)
Castrol Safe Coat DW-80	792
VpCI-325	*DNF

DNF – Did not fail.

ASTM B 117 Salt Fog Cabinet

Oil Coating	Time to Corrosion (Hours)
Castrol Safe Coat DW-80	48
VpCI-325	96

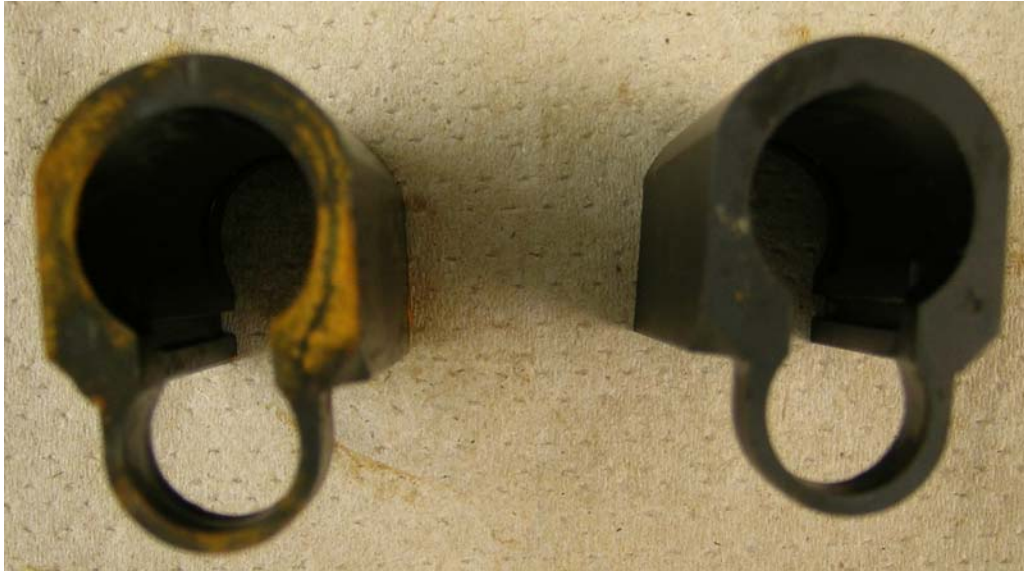


Conclusion: Humidity testing did not show significant results in favor of either product. After 792 hours, a small spot (~1 cm) of corrosion was present on the piece coated in the Castrol oil, while the piece coated with VpCI-325 was still corrosion free.

When moved to salt spray, corrosion occurred much faster, and results were more dramatic. The piece dipped in Castrol oil started to corrode after 48 hours, and had corroded significantly after 96 hours. After 96 hours, the first small spots of corrosion were also present on the piece dipped in VpCI-325. At that point, both pieces were pulled from testing.

In both tests, VpCI-325 provided superior protection. In addition, VpCI-325 is vegetable oil based, and therefore, environmentally friendly.

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After 96 hours in ASTM B 117 Salt Spray. Castrol on left, VpCI-325 on right.



