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LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.

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User Data:	Date:8-Apr-2015	Time:22:24:39	File: xpert 25 wssm 80gr.dat	
Cartridge / Caliber	.25 WSSM	Bullet	.257, 80, XPERT	
Maximum Average Pressure, allowed	64542 psi.	4450 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.257 in.	6.53 mm	Bullet Weight	80.0 gr. 5.18 gm
Case Capacity, overflow	54.31 gr. H2O	3.526 cm ³	Bullet Length	1.063 in. 27.0 mm
Case Length	1.660 in.	42.16 mm	Bullet Seating Depth	0.479 in. 12.17 mm
Cartridge O.A. Length	2.244 in.	57.0 mm	Barrel/Tube Length	24.0 in. 609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.05118 in. ² 0.3302 cm ²
Propellant type	Somchem S355			
Charge Weight	42.0 gr.	2.722 gm	Load Density	220.8 gr./in. ³ 0.873 gm/cm ³
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	55929 J/in. ³ 3413 J/cm ³
Propellant Solid Density	404.63 gr./in. ³	1.6 gm/cm ³	Used Ratio of Specific Heats cp/cv	1.2291
Burning Rate Factor Ba	0.5 1/s		Weighting Factor	0.5
Burning Function Limit Z1	0.39		Prog.-/ Degressivity Factor a0	2.36
Factor b	1.774		Bulk Density	227.6 gr./in. ³ 0.900 gm/cm ³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.479 in.	12.17 mm	Capacity Displaced by Seated Bullet	0.0249 in. ³	0.408 cm ³
Useable Case Capacity	0.1902 in. ³	3.118 cm ³	Bullet Travel at Muzzle Exit	22.82 in.	579.61 mm
Loading Ratio("Density") / Filling	97.0 %		Charge Fraction Burnt at Shot Start	1.45 %	

Predicted Data:

Maximum Chamber Pressure	47863 psi.	3300 bar	Bullet Travel at Pmax	2.17 in.	55.1 mm
at Muzzle Exit:					
Bullet Velocity	3280 fps.	999.7 m/s	Pressure at Muzzle	9080 psi.	626 bar
Bullet Energy	1911 ft.lbs.	2591 Joule	Bullet Barrel Time	1.105 ms	
Propellant Burnt	97.3 %		Ballistic Efficiency	24.3 %	

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !
 Real maximum (peak) of pressure is reached while bullet moves within barrel.
 End of combustion occurs after the bullet's base passes muzzle.

