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 cm³	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 cm²
Propellant type	**Somchem S355**				
Charge Weight	42.0 gr.	2.722 gm	Load Density	220.8 gr./in.³	0.873 gm/cm³
Heat of Explosion, Potential	253.4 J/gr.	3910 J/gm	Energy Density of Charge	55929 J/in.³	3413 J/cm³
Propellant Solid Density	404.63 gr./in.³	1.6 gm/cm³	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/cm³

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 cm³
Useable Case Capacity	0.1902 in.³	3.118 cm³	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.