

Data set	1.1.1 Arc Arc height data							Target Saturation Time**	Target Intensity* 000's
	Minutes	4	6	8	12				
1	Minutes	4	6	8	12			4.8	6.4
	Inch A	0.006	0.0069	0.007	0.007				
2	Minutes	2.5	5	10	20			6.5	4.0
	Inch A	0.003	0.0036	0.0044	0.0044				
3	Cycles	3	6	12	24			5.65	8.0
	Inch N	0.0065	0.0081	0.0088	0.009				
4	Cycles	1	2	3	4			1.87	4.8
	Inch A	0.0038	0.0051	0.0052	0.0053				
5	Minutes	4	6	8	12			4.82	6.6
	Inch A	0.0062	0.007	0.0072	0.0072				
6	Minutes	1.13	2.25	4.5	9			4.12	9.8
	Inch N	0.0046	0.0087	0.0101	0.0107				
7	Minutes	2	3	4	6			2.8	6.3
	Inch N	0.0055	0.0066	0.0067	0.0068				
8	K/Feed	0.25	0.5	0.75	1	2	4	0.43	9.3
	Inch A	0.0081	0.0096	0.01	0.0103	0.0108	0.0113		
9	K/Feed	0.25	0.5	0.75	1	2	4	0.66	13.7
	Inch A	0.0108	0.0129	0.0137	0.0144	0.0157	0.0164		
10	K/Feed	0.25	0.5	0.75	1	2	4	0.47	5.4
	Inch A	0.0045	0.0054	0.0059	0.0058	0.0062	0.0064		

Introduction:

The saturation curve solver program is intended to graphically display the results of four, or more, Almen strip arc heights and automatically determine a value for intensity as described in SAE J443. This is accomplished by using an iterative technique with Excel "Solver", an add-in for Excel.

To use the program you enter the times and the arc heights of one of the data sets. Then click on "Tools" and "Solver". Click "OK" and the solver will arrive at an answer for "intensity" and generate the saturation curve graph.

To qualify this, or any other, curve solver program you should input all ten sets of data into the Curve Solver Program. The intensity "answer" should be within  $\pm 0.01$  inch and the saturation time "answer" should be within  $\pm 20\%$  for each of the ten data sets.

NOTE: Excel Solver will not work accurately with small numbers. Therefore, instead of entering .0064 arc height you must use 6.4 etc. The answer then would be reported in thousandths of inch.