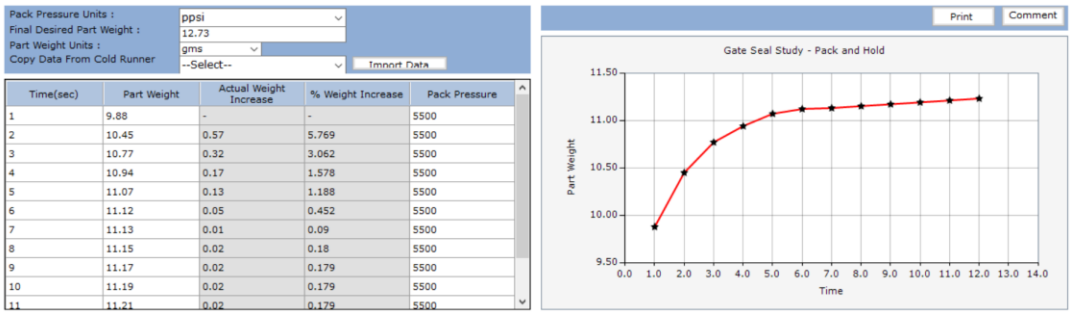
When to use this worksheet?

In some cases, the gate seal graph will show the part weight is constantly increasing and does not become constant. Examples of this will be for soft materials, hot runner molds and sprue gated molds. In such cases use this worksheet to create a pack phase where you get the required plastic into the cavity and then the hold phase to hold it in there creating the constant weight.

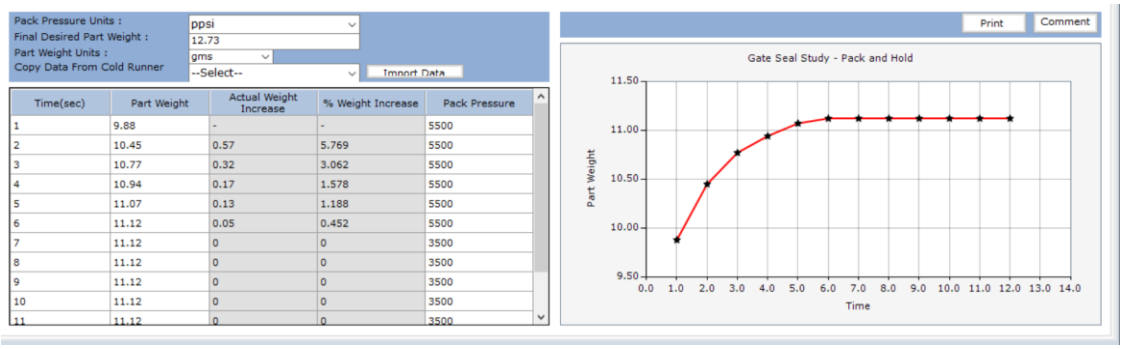
Procedure:

1. Copy over the data from one of the columns from the conventional gate seal study and click on import data to get the data over to the columns.



Time(sec)	Part Weight	Actual Weight Increase	% Weight Increase	Pack Pressure
1	9.88	-	-	5500
2	10.45	0.57	5.769	5500
3	10.77	0.32	3.062	5500
4	10.94	0.17	1.578	5500
5	11.07	0.13	1.188	5500
6	11.12	0.05	0.452	5500
7	11.13	0.01	0.09	5500
8	11.15	0.02	0.18	5500
9	11.17	0.02	0.179	5500
10	11.19	0.02	0.179	5500
11	11.21	0.02	0.179	5500

2. Determine where the increase in part weight begins to be minimal – in this case, 6.0 seconds where the part weight is 11.12 grams.
3. Pack pressure will be the pressure the study was performed at (5500 plastic psi) and pack time will be 6.0 seconds.
4. If the plastic is now held in the cavity (no more packing), the part weight will be constant. The hold pressure must therefore be lower than the pack pressure. Drop the pressures leaving the total time at 12 seconds such that the part weight is 11.12 grams. This will be the hold pressure. In this case, 3500 ppsi
5. Now drop the total time by 1 second at a time and determine when the part weight drops less than 11.12 grams, indicating that the pressurized plastic is coming backout from the cavity. Add one second to this time. Subtract the pack time (6.0 sec) from the total time to give the hold time, in this case 2 seconds.



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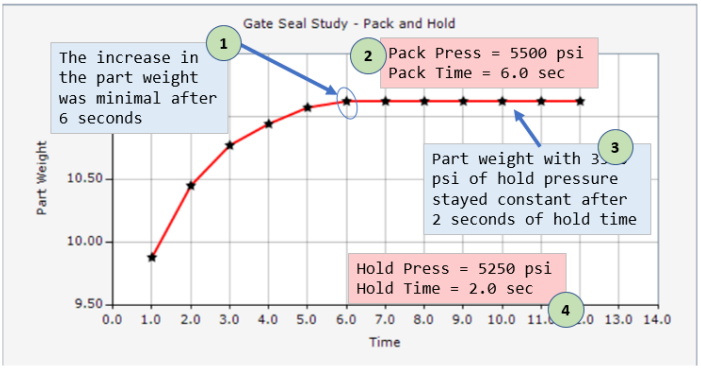
6	11.12	0.05	0.452	5500
7	11.12	0	0	3500
8	11.12	0	0	3500
9	11.12	0	0	3500
10	11.12	0	0	3500
11	11.12	0	0	3500


Gate Seal Study - Pack and Hold
1
The increase in the part weight was minimal after 6 seconds
2
Pack Press = 5500 psi
Pack Time = 6.0 sec
3
Part weight with 3
psi of hold pressure stayed constant after 2 seconds of hold time
Hold Press = 5250 psi
Hold Time = 2.0 sec
4
Part Weight
10.50
10.00
9.50
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
13.0
14.0
Time