Solidworks Simulation BME 200

Procedure

1. Left-click on Simulation then Study.



2. Static is selected by default. Confirm that it is selected and then click the green check mark.



3. Click Apply Material and be patient! It may take ~10 seconds for the next window to pop up.

$\bullet \bullet \bullet < > \square$
Study Apply Material Fixtures External Connections Shell Manager Results Deformed Con Results Deformed Results
Features Apply Material IDWORKS Add-Ins Simulation SOLIDV Defines material to selected Items. Defineseselected Items. Defines material t
∛
G History G Sensors
Material Annotations
[] Front Plane
Li Kight Plane

4. Choose the material ABS, under Plastics. Click Apply. Then click Close.

N	Aaterial				×	
-	SOLIDWORKS DIN Materials SOLIDWORKS Materials D SOLIDWORKS Materials D Steel D In Iron	Properties Tables & Curves Appearance CrossHatch Custom Application Dat • • Material properties Materials in the default library can not be edited. You must first copy the material to a custom library to edit it. Model Time: Linear Electric restronce of Save model type in library				rt 🛔 Manage Ne
	Aluminium Alloys	Unite	SL N/m A 2 (E	(a)		
F	> Titanium Allow	01101	Diantias	aj	-	
1	Time Alloys	Category:	Plastics			
d	> i= Other Alloys	Name:	ABS			
	✓ I Plastics	Default failure criterion:	Unknown		~	
	8≡ ABS	Description:				
	8 ABS PC	Source:				
	🖁 Acrylic (Medium-high impact)	Sustainability:	Defined			
	Delrin 2700 NC010, Low Viscosity Ac	Property		Value	Units	
	S Epoxy, Unfilled	Elastic Modulus		2000000000	N/m^2	
	8 EPDM 8 Matamina and	Poisson's Ratio		318900000	N/A	
	8 Melamine resin	Mass Density		1020	kg/m^3	
	S= Nylon 6/10	Tensile Strength		30000000	N/m^2	
		Compressive Stre	ngth		N/m^2	
	E PBT General Purpose	Yield Strength			N/m^2	7/
	e PC High Viscosity ✓	Thermal Expansio	on Coefficient		/K	
<	< >	Thermal Conduct	ivity	0.2256	W/(m·K) ~	
	Click here to access more materials using	Apple	Close	Save	Config. Help	

5. Next, click Fixtures. A fixture is one or more surfaces on your model that will remain fixed when the load is applied.



6. Then click Add a fixture on the right side of the screen.



7. Flip the part so that you can see the surfaces you want to add fixtures to. There is no "correct" view. Use whichever one gives you the best angle.



8. Select the surfaces you want to remain fixed. A list of the surfaces (faces) you select will appear on the left. The structures in the diagram will turn blue. Once you are done, click the green check mark.



9. Next, click External Loads.



10. Then click Add a load on the right side of the screen.



11. Arrange your part so that you can see the face on which you want to apply the force. Then, click on the face. Enter the amount (in Newtons) of the force in the blank. Then click the green arrow.



12. Click Run.



13. Once the simulation is done, right-click on Stress1 then left-click on Show.



14. Use File->Save As PDF to save a PDF of your stress results.



Summary

These are the steps you performed to run the simulation:

- 1. Specify the part
- 2. Specify the type of simulation (static load)
- 3. Specify the materials for the part (ABS)
- 4. Specify the fixtures. These are the parts that remain fixed while the load is applied.
- 5. Specify the external loads. These force(s) applied to the part.
- 6. Run the simulation.

NOTE! If you want to adjust a dimension and re-run a simulation, you do not need to go through all these steps each time. Simply adjust the dimension of the part you are interested in and then run the simulation again.

