

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

DEPARTMENT OF CHEMICAL ENGINEERING

PG Research lab

STANDARD OPERATING PROCEDURE

UTM

1. Switch on power from UPS output.
2. Switch on Test Control -2 (TC-2). (ON- vertical position marked)
3. On the machine – wait for booting until light blows off.
4. Start software Xpert-2 v 3.6.
5. Four stages – Red, white, green, gray.
Red – Drive system not ON.
White – Drive system ON. Machine is ready.
Green – when manually movement
Grey- Setup. (Panel key always to be in test condition)
6. Two load cell – 5 KN (Capacity Range 200 N to 5 KN)
& 0.5 KN (Capacity Range 20 N to 0.5 KN)
7. Three Grips –

I)	Compression Grip (5 KN)
II)	Pneumatic Grip (5 KN)
III)	Pneumatic Grip - (2.5 KN)
8. Stepper motor with encoder
9. File---- Open ----- Compression program ----- Start position.
10. Report editing ---- File----- Export Interface ----- Word, excel, pdf.
11. Load cell always to be fitted bottom side.
12. Force zero----- Set force zero (by grip to load cell).
13. Select specimen ----- change dimension -----evaluate
14. Wizard----- test definition -----compression.

Start position ----- accept.

Speed ----- in mm/ min (Range - .01 to 1200 mm/min)

Preload ---- need to be set
15. Specimen -----select type-----give dimension

16. Test-----Test speed

17. End of test ----- 1. Upper force limit
2. Maximum deformation.
3. Maximum test duration.

18. Action after the test. (Right tick---check ok)

19. Parameter for the report --- Right click on graph -- change unit of force and deformation

20. 2.5 KN grips to be fitted for tensile test.

Temperature Chamber

1. Switch on the black switch on rear side of heater.
2. Set the desired temperature (High temperature range up to 250°C)
3. Machine-----Eurotherm----- Set Temperature and Ramp Rate ----- send.
4. Wizard----- Temperature ----- Set temperature.
5. Waiting Time -----120 seconds.

Compression with temperature

1. 5 KN load cell with rod and grip (5 KN) to be fixed.
2. Round type white compression plate to be used.
3. Program ----- start position ----- sample ----- force zero ----- start.

Tensile with 5 KN grip

1. To be used for hard, big and tough sample.
2. Force zero to be done before sample fixing.