

19

'23 JUNE

WK 25 · 170-195

MONDAY

2023

M	T	W	T	F	S	S
5	6	7	1	2	3	4
12	13	14	8	9	10	11
19	20	21	15	16	17	18
26	27	28	22	23	24	25

9 Case 3 - IC Discharging.

10 Battery Thermal Analysis.

11 ⇒ Material Properties :-

#12 Input Data.

① Internal Heat generation
(IC discharging) = $3.172 \text{ e} - 6 \text{ W/mm}^2$

2 ⇒ Thermal Paste (3C Discharging)

3 ⇒ Material Properties.

4 As per the analysis I given
5 condition you need to select the
material properties.

6 # Meshing.

19 23 JUNE
WK 25 170-195

MONDAY

Case 3 - IC Discharging.

Battery Thermal Analysis.

11 $\Rightarrow$ Material Properties $\Rightarrow$.

Input Data.

1 Internal heat generation
(IC discharging) = $3.172 - 600/m^3$

2 Thermal loss (EC Discharging)

3 Material Properties.

As per the analysis I give
condition you need to select the
material properties.

Meshing.

apollo
TYRES

JUNE '23
WK 25 171-194

TUESDAY

Input Data.

1 Internal heat generation
EC discharging = $1.02e-500/m^3$.

2 Ambient Temp. = $22-27^\circ C$

3 Heat convection = $2200/m^3 \cdot ^\circ C$

4 Radiation (1-ionised) = 0.02 .

5 Radiation (holder ABS) = 0.92 .

6 Time 1200 Sec.

7 Thermal Data Ste.

(A) Density = $2100 kg/m^3$
(B) ISO Thermal conductivity = $500/m^2$
(C) Specific heat CP = $736 J/kg^\circ C$

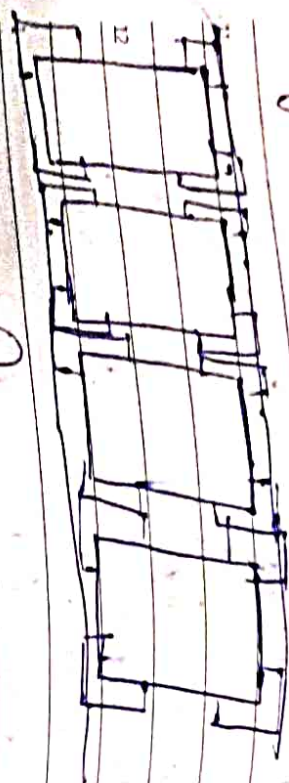
apollo
TYRES

21 23 JUNE
WK 25 - 172-193

WEDNESDAY

LC Discharging

Analysis Steps :-



2 Material Properties.

Input Data

1 Internal Heat Generation (1C discharge)
= $3.40 \text{e-}6 \text{ W/m}^3$

2 Ambient temp $T = 22-27^\circ\text{C}$

3 Heat Convection = 22 W/m^2

4 Radiation (1C-ion-cell) = 0.02

5 Radiation (Holder + BS) = 0.92

6 Time 3600s.

2023	M	T	W	T	F	S
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

22 JUNE '23
WK 25 - 173-192
THURSDAY
LC Discharging Offware Simulation.

Analysis Steps :-

1 A Preprocess :-

- Geometry making.
- Geometry cleanup.
- Name Selection.
- Material Properties Selection.

2 B. Case Set-up.

- > Applying boundary condition.
- > Selecting Solver.

3 C. Post Process

- > Result Interpretation.
- > Plots & contour making.

4 Battery Geometry :-

A Battery Pack.

B. Cell

C. Metal Plate

D. Holder.

2023	M	T	W	T	F	S
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						

apollo
TRADES

apollo
TRADES

23

23 JUNE

WK 25 · 174-191

FRIDAY

Input Data

① Infrared Heat generating (3 Calichrogiy = 1000
at 20mm)

at 20mm) = 22-27°C

② II Subject temp = 22-27°C

③ Heat Conduction = $22 \text{ W/mm}^3 \text{ g}$

Radiation (11-ion cell) = 0.02

④ Radiation (Holder ABS) = 0.02

⑤ Time = 1200 sec.

⑥

3

4

5

6

2023						
M	T	W	T	F	S	S
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

2023						
M	T	W	T	F	S	S
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE '23

WK 25 · 175-190

SATURDAY

24

Case 2 - 3C Discharging

① $3C = I \cdot t$

Heat Power = $I^2 R$

= $3^2 \times 0.025$

= 0.225 W

Volume = $1.65 \text{ e}^{-2} \text{ mm}^3$

Infrared Heat Generation

= Heat Power

Volume

= $0.225 \text{ W} \text{ (g) } 3C$

1.65 e^{-2}

= $1.36 \text{ e}^{-6} \text{ W/mm}^3$

SUNDAY 25

apollo
TRACKS