

**Subject:**

Application of Signet-ETP on Battery Operated Pallet Truck traction battery.

**Objective:**

- Enhancing life & performance.
- Rejuvenating capacity of 24V 300 AH battery.
- Maintain the battery health at required level.

**Battery Details:**

Make: Exide Ironclad.

Specification: 300 Ah, 24 V/ WSWB-91 no. Battery operated pallet Truck.

Type / Serial No: XWBF7 / H07.06 T1787

Manufacturing month/year: July 2006.

Step 1: Three year old battery was selected for the Testing activity.

Step 2: On 3<sup>rd</sup> June 2009, it was given a full charge and then the discharge was conducted at the rate of 25 amps current. Battery was discharged for 03 hours, the voltage reached 21.07 V. Specific gravity and voltage recorded hourly.

Step 3: Additive added to each cell.

Step 4: Quantity added as per company's recommendation, i.e. 10% of Ah capacity in ml/cell.

Quantity added per cell=  $300 \times 0.10 = 30$  ml.

Total quantity=  $30$  ml  $\times$  12 cells = 360 ml.

Step 5: Battery was charged and was in service for 4 months.

Step 6: Discharge was done post ETP application on 23<sup>rd</sup> Nov 2009. Step 2 was repeated.

**Observations:**

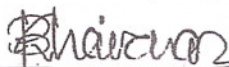
Before adding ETP, battery voltage dropped by 1.02 V in 10 minutes time, which improved to Three hours after addition of SIGNET - ETP.

Specific gravity of all cells recorded in the range of 1.220-1.230 against before ETP 1.170-1.190.

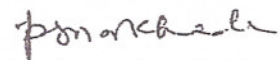
Voltage of cells maintained at 2.01-2.03 V against before ETP 1.90-1.92 V.

**Conclusion:**

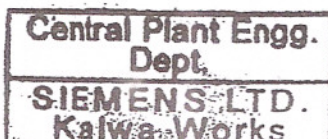
- The charge received by battery was 25.03 V, but in 10 minutes of use same would drop to 24.01 V. That indicates current holding capacity of the battery was very poor.
- Hence run time / discharge time too was less than expected. After ETP addition current holding capacity and discharged time prolonged to 03 hours.
- ETP has rejuvenated capacity of the battery which helped it to prolong discharge time.
- The capacity of the battery has been improved.



Mr. Bhalchandra L. Khairnar  
M/s. Siemens Ltd.



Mr. Pramod Narkhede  
M/s Signet Comp. Pvt. Ltd.





**DISCHARGE TEST:- WITHOUT SIGNET ETP ADDITIVE**

Customer Name : SIEMENS Ltd. Kalwa.

Date : 03.06.09

Battery Spc : 300Ah/24V/WSWB-91

Rate Of Discharge : 25 Amps.

Battery Type: KWBF7

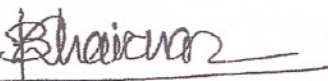
Battery Serial No: H07.06 T1787

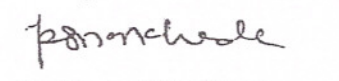
Battery Make : Exide Ironclad.

Battery Mfg. Year : 07.2006

Test Chart	Before Discharge		During Discharge							
	0 hr		After 10 minute		After 1 hr		After 2 hr		After 3 hr	
Time Lap	1.00 pm.		01.10 pm.		2.00 pm		03.00 pm		04.00 pm	
Time	Sp. Gr.	Volt	Sp. Gr.	Volt	Sp. Gr.	Volt	Sp. Gr.	Volt	Sp. Gr.	Volt
1	1230	2.09	1230	2.01	1220	1.96	1200	1.93	1170	1.92
2	1240	2.10	1240	2.00	1220	1.97	1200	1.94	1180	1.90
3	1250	2.10	1250	2.00	1230	1.98	1200	1.95	1180	1.92
4	1250	2.10	1250	1.99	1210	1.96	1190	1.94	1180	1.90
5	1250	2.10	1250	2.00	1220	1.98	1210	1.95	1170	1.92
6	1240	2.08	1250	1.98	1220	1.95	1190	1.93	1170	1.89
7	1250	2.11	1250	2.00	1230	1.98	1200	1.96	1180	1.92
8	1250	2.10	1250	2.00	1230	1.98	1210	1.96	1190	1.93
9	1250	2.10	1250	2.00	1220	1.97	1210	1.95	1190	1.91
10	1250	2.11	1250	2.00	1230	1.98	1210	1.95	1190	1.92
11	1250	2.10	1250	1.99	1230	1.97	1200	1.94	1170	1.91
12	1250	2.09	1250	1.99	1220	1.96	1200	1.94	1180	1.90

Total Voltage	25.03	24.01	23.07	22.09	21.07
---------------	-------	-------	-------	-------	-------

  
Mr. Bhalchandra L. Khairnar  
M/s. Siemens Ltd.

  
Mr. Pramod Narkhede  
M/s. Signet Comp Pvt. Ltd.



### DISCHARGE TEST :- WITH SIGNET ETP ADDITIVE

Customer Name : SIEMENS Ltd. Kalwa.

Date : 23.11.09

Battery Spc : 300Ah/24V/WSWB-91

Rate Of Discharge : 25 Amps.

Battery Type: XWBF7

Battery Serial No: H07.06 T1787

Battery Make : Exide Ironclad - 07/06

Battery Mfg. Year : 07.2006

Test Chart	Before Discharge		During Discharge							
	0 hr		After 10 minute		After 1 hr		After 2 hr		After 3 hr	
Time	1.00 pm.		01.10 pm.		2.00 pm		03.00 pm		04.00 pm	
	Sp. Gr.	Volt	Sp. Gr.	Volt	Sp. Gr.	Volt	Sp. Gr.	Volt	Sp. Gr.	Volt
1	1240	2.14	1240	2.05	1240	2.04	1230	2.03	1230	2.02
2	1240	2.14	1240	2.04	1240	2.03	1230	2.02	1220	2.02
3	1250	2.15	1250	2.06	1250	2.05	1240	2.04	1230	2.03
4	1250	2.15	1250	2.05	1240	2.04	1230	2.03	1230	2.03
5	1250	2.15	1250	2.05	1250	2.04	1240	2.03	1230	2.03
6	1240	2.14	1240	2.04	1240	2.03	1230	2.02	1220	2.01
7	1240	2.15	1240	2.05	1240	2.05	1240	2.04	1230	2.03
8	1250	2.15	1250	2.06	1250	2.05	1240	2.04	1220	2.03
9	1250	2.15	1250	2.05	1240	2.04	1240	2.03	1220	2.02
10	1240	2.15	1250	2.05	1240	2.04	1230	2.03	1220	2.02
11	1250	2.15	1250	2.05	1240	2.04	1230	2.03	1220	2.01
12	1250	2.15	1250	2.05	1250	2.04	1230	2.03	1220	2.01

Total Voltage

25.07

24.06

24.05

24.04

24.03

Mr. Bhalchandra L. Khairnar  
M/s. Siemens Ltd.

Mr. Pramod Narkhede  
M/s. Signet Comp. Pvt. Ltd.