



Chemical Engineering Division
NATIONAL SUGAR INSTITUTE
Government of India
KANPUR
Proforma C : Chemical Engineering

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|-------------------------------|---------|-------------|--------------------|
| Name of the Factory : | | | |
| Contact person details | | | |
| Name | | | |
| Telephone number | | | |
| Fax / email | | | |
| Capacity | TCD | TCH@ 22 HRS | |
| | Current | Last | Last before Season |
| Recovery | | | |
| MJ% cane | | | |
| CJ% Cane | | | |
| Filterate returns % Cane | | | |
| Added water at filters % Cane | | | |
| Imbibition water % cane | | | |
| Bagasse % Cane | | | |
| Masseccuite % cane | | | |
| First | | | |
| Second | | | |
| Third | | | |
| Fourth | | | |
| Any other analysis data | | | |
| | | | |
| | | | |

| Dates of visit | From | To |
|--|------|----|
| 1. JUICE HEATERS | | |
| (i) Tubular juice heaters | | |
| (a) Total number of Juice heaters | | |
| (b) Serial number | | |
| (c) Heating surface (M ² / ft ²) | | |
| (d) I.D. of tubes (mm) | | |
| (e) O.D. of tubes(mm) | | |
| (f) Total number of tubes | | |
| (g) Number of passes | | |
| (h) Tube per pass | | |
| (i) Juice velocity at 110% juice and 22 hours per day working (ft/sec) (m/sec) | | |
| (j) Used for | | |
| (ii) Plate type heat exchanger | | |
| (a) Used for | | |

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| <ul style="list-style-type: none"> (b) Heating surface (c) No. of plates (d) Size of plates (e) Steam pipe dia. (f) Inlet juice temperature (g) Outlet juice temperature | |
| <ul style="list-style-type: none"> (iii) Temperature of raw juice (iv) In case of vapour line juice heater temperature of raw juice before and after vapour line juice heater (v) Temperature of raw juice after first heating and mention heating medium (vi) Temperature of first heating of sulphated juice and mention heating medium (vii) Temp. of sulphited juice/ sulphited juice after final heating and mention heating medium (viii) Whether temperature gauges are provided/ in working order? (ix) Whether steam/vapour pressure gauges are provided/ in working order? <p>If so, steam/vapour pressure</p> | |
| <p>2. EVAPORATORS</p> | |
| <ul style="list-style-type: none"> (i) Vapour Cell (First) <ul style="list-style-type: none"> a) Type b) Number of bodies c) H.S. for each body of vapour cell (m²/ft²) d) Dia. g) Pressure maintained in the vapour cell h) Vapors from vapour cell are used for a massecuite, B massecuite, o (in Yes are No). (ii) Vapors cell (Second) Type ---> <ul style="list-style-type: none"> a) Type b) Number of bodies c) H.S. of the body (m²/ft²) | |
| <ul style="list-style-type: none"> (iii) Evaporator (Excluding vapour cell) <ul style="list-style-type: none"> a. No. of evapourator sets b. Bodies in each evaporator set c. H.S. of each body of each set (m²) d. Total heating surface at the Evaporator station (m²/ft²) e. Pressure/vaccum in different body | |

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| <p>f. Brief note along with sketch of condensate extraction system with height and diameter of each pipe for each set</p> <p>g. Analysis data (for last 15 days)</p> <ol style="list-style-type: none"> 1) Crush rate 2) M.J % cane 3) Clear juice Brix % 4) Unsulphured syrup Brix % | <p>This season</p> <p>Last Season</p> |
| 3. CONDENSERS | |
| <ol style="list-style-type: none"> a) No. of condensers b) Type of condensers c) condenser used for d) Size of each condenser and their tail pipe dia in mm | |
| 4. INJECTION WATER PUMPS: | |
| <ol style="list-style-type: none"> a) Number of injection water pumps b) Whether common header is provided or not? c) Number and size of each condenser connected with each injection pump d) Capacity of individual injection water pump alongwith head in m³/hour/lgph e) Total capacity of all injection pump in cubic meter/hour/lgph f) Installed and operating power of each pump | Yes / No |
| 5. SPRAY WATER PUMPS | |
| <ol style="list-style-type: none"> a) Number of spray pumps b) Capacity and head of each pump c) Total capacity of spray pumps M³/hour or gph. d) Conditions of Injection water (15 days data) | Attach a separate table showing inlet outlet temperatures, dry and wet bulb temperatures and pH |
| 6. VACCUM PUMPS / WATER EJECTORS | |
| <ol style="list-style-type: none"> a) Number of vaccum pumps/Water pumps b) Details of all the pumps Drive (steam/ electric driver) Pump Number Capacity in M³/hour used for | |

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| c) Total capacity of air pumps for Evaporators Pans | |
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7. ARRANGEMENT FOR SPRAY:

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| a) Type of system provided for water cooling | |
| b) Number of nozzles provided for spray pond | |
| c) Size of each nozzle | |
| d) Type of nozzle | |
| e) Size of spray pond | |
| f) Details of the cooling tower | |
| Number of cells | |
| Number, size and capacity of each fan attached to the tower | |
| Other available data | |

OTHER DETAILS TO BE SUBMITTED

1. Process flow sheet and P& I diagram for the juice heater, evaporator and condenser stations.
2. Sketch of vapor bleeding system
3. Sketch of condensate utilization / disposal arrangement
4. Sketch of non condensible extraction system
5. Schedule of machinery Correct up to the current season