## ENVIRONMENTAL STANDARDS FOR PETROLEUM OIL REFINERIES

### EFFLUENT

| S. No. | Parameter | Limiting value for concentration (mg/l, except for pH) | Limiting value for quantum (kg/1000 tonne of crude processed, except for pH) |
|---|---|---|---|
| 1 | pH | 6.0 – 8.5 | - |
| 2 | Oil & Grease | 5 | 2 |
| 3 | $BOD_{3\ days,\ 27^0C}$ | 15 | 6 |
| 4 | COD | 125 | 50 |
| 5 | SS | 20 | 8 |
| 6 | Phenols | 0.35 | 0.14 |
| 7 | Sulphides | 0.5 | 0.2 |
| 8 | CN | 0.2 | 0.08 |
| 9 | Ammonia as N | 15 | 6 |
| 10 | TKN | 40 | 16 |
| 11 | P | 3 | 1.2 |
| 12 | Cr (VI) | 0.1 | 0.04 |
| 13 | Total Cr | 2.0 | 0.8 |
| 14 | Pb | 0.1 | 0.04 |
| 15 | Hg | 0.01 | 0.004 |
| 16 | Zn | 5.0 | 2 |
| 17 | Ni | 1.0 | 0.4 |
| 18 | Cu | 1.0 | 0.4 |
| 19 | V | 0.2 | 0.8 |
| 20 | Benzene | 0.1 | 0.04 |
| 21 | Benzo(a) pyrene | 0.2 | 0.08 |

Notes:

1. Concentration limits shall be met at the outlet, discharging effluent (excluding discharge from sea water cooling systems) to receiving environment (surface water bodies, marine systems or public sewers). In case of reuse of effluent directly for irrigation/horticulture purposes (within or outside the premises of refinery), make-up water for cooling systems, fire fighting, etc., the concentration limits shall also be met at the outlet before taking the effluent for such reuse. However, any use in the process such as use of sour water in desalter is excluded.

2. In case of circulating seawater cooling, the blow-down from cooling systems shall be monitored for pH and oil & grease (also hexavalent & total chromium, if chromate treatment is given to cooling water) and shall conform to the concentration limits for these parameters. In case of reuse of

treated effluent as cooling water make-up, all the parameters (as given in MINAS) shall be monitored and conform to the prescribed standards.

3. In case of once through cooling with seawater, the oil & grease content in the effluent from cooling water shall not exceed 1.0 mg/l.

4. Quantum limits shall be applicable for discharge of total effluent (process effluent, cooling water blow down including sea cooling water blow down, washings, etc.) to receiving environment (excluding direct application on land for irrigation/horticulture purposes within the premises of refinery).

5. In order to measure the quantity of effluent (separately for discharge to receiving environment, reuse for irrigation/horticulture purposes within the premises of refinery & blow-down of cooling systems), appropriate flow measuring devices (e.g. V-notch, flow meters) shall be provided.

6. Quantum of pollutants shall be calculated on the basis of daily average of concentration values (one 24-hourly composite sample or average of three grab samples, as the case may be), average flow of effluent during the day and crude throughput capacity of the refinery.

7. Limit for quantity of effluent discharged (excluding blow-down from seawater cooling) shall be 400 $m^3$/1000 tonne of crude processed. However, for refineries located in high rain prone area, limit of quantity of effluent only during rainy season shall be 700 $m^3$/1000 tonne of crude processed.

**Source: EPA Notification**
**[G.S.R 186(E), dt. 18th March, 2008]**

Guidelines (Downloadable)
Original Notification (Downloadable)