>> Air Pollution Control

Environmental Monitoring

Established in 1995, CSC Environmental Monitoring Center continuously monitors, reveals and analyzes the discharge of stationary pollution source in the factory site. Current system works in the following 3 dimensions:

A. Air Quality Display Boards Around CSC:

Five monitoring posts are situated around CSC with one display board on the northern point of the factory and another on the south to provide information of surrounding air quality. Monitoring includes suspended particles between 2.5~10 μm, SO_2, NOx, CO, O_3, total HC, wind speed, wind direction, humidity and rainfall amount.

B. Continuous Flue Gas Discharge Monitoring System:

Twenty-six major chimneys in factory site are attached with devices to monitor SO_2, NOx, oxygen content, opacity, temperature, etc. Results are immediately transmitted to Bureau of Environmental Protection, Kaohsiung City.

C. Round-the-Clock Environmental Monitoring System:

Environmental condition in factory site is being monitored round-the-clock by 27 video cameras.

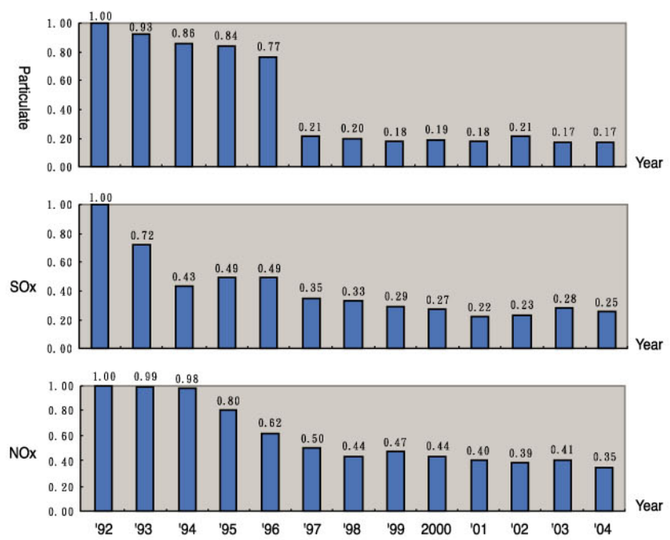
Environmental Analysis

CSC conducts environmental analysis on air, toxic substances, water, waste, noise, suspended solids, etc. every year to either meet legal requirements or follow internal procedures. In most cases professional consulting firms are commissioned to undertake such projects, with only a small portion done by CSC internally.

Air Pollution Control

A. Current Status and Trend

Air pollution control is an important task in environmental protection, particularly for the resources and energy intensive steel industry. CSC's investment in air pollution control over the years, amounting to 72.4% of its total environmental investment, has resulted in significant improvement. In 2004 the emissions of particulates, SOx and NOx are 0.85 kg, 1.21 kg and 1.03 kg respectively per tonne of steel products, which means a decrease of 83%, 75% and 65% compared to that of 1992. The trend of improvement over the past 13 years is shown in the chart (right):



13-year trend in air pollution per tonne of steel product (relative index)

B. Measures of Air Pollution Control

* Use of low pollution fuels such as fuel oils with sulfur <0.5% and clean steaming coals with sulfur <0.15%. Decrease the ratio of fuel oil and increase use of fuel-gas,etc.
* Increase waste heat recovery equipment in the sintering plant and blast furnace plant to reduce fuel consumption and air pollution.
* Fugitive Dust Control: Measures include pile height reduction, water and chemical spray at piles, use of closed-type conveyers, applying dust-collecting system at fugitive sources and enhanced road cleaning, etc.
* Improved Production Facilities and Maintenance: Improvement is made to reduce emissions of facilities based on their emission sources. For example, blast furnace slag treatment is switched from the open-type air-cooling to close-type water-quenching to reduce fugitive emissions; the shutdown rate of production facilities is minimized to reduce emissions during shutdowns and startups; low NOx burners are used in reheating furnaces, etc.
* Improved Production Management: For production and pollution control facilities, enhanced management, control and audits can help increase operation efficiency and reduce abnormal emissions due to human errors.
* End-of-pipe Treatment : To ensure compliance with environmental regulations CSC has invested in end-of-pipe technologies over the years including multi-pulse electric precipitators and selective catalytic reduction (SCR) type de-NOx system for sintering plants, the de-SOx system for COG gas, the selective non-catalytic reduction (SNCR) type de-NOx system for power plants as well as dry-type/wet-type de-dusting systems for various applications.
* Reduced Dioxin Emissions: Install activated carbon injection equipment in the waste incinerator to ensure emission of dioxin remains below 0.1ng-TEQ/Nm^3.
* Emission of Volatile Organic Compounds (VOC): Tests conducted in the sintering plants suspected as major source of VOC emission show that actual VOC emission factor is only 2.48% of the original estimate figure. The results prove that sintering plants are not a major source of VOC emissions.

Bag house

Ammonia tank of de-NOx system

Distribution control panel of SNCR