Implementation of the PRTR

(Law for PRTR and Promotion of Chemical Management)

Industrial circles handling chemical substances in Japan have been making various efforts for the smooth implementation of the PRTR in adherence with the spirit of the PRTR System. In particular, the Ministry of Economy, Trade and Industry held meetings to explain methods for estimating releases and transfers of chemical substances and conducted surveys as part of its measures to promote the PRTR system and its environment.

In response to that, industry people voluntarily took part in working group meetings for respective sectors during 1999 and 2000 and stepped up efforts toward drafting of a "Manual for Estimating Releases and Transfers for PRTR Chemicals" by industry. The core elements for implementing the system have been based upon collected professional knowledge and technologies concerning respective activities and results of reviews conducted on the entire manufacturing processes and chemical substances handled in industries. Efforts were also made aiming at developing manuals that are easily used and understood by people in each industry.

Preparations for such PRTR manuals have been continuously undertaken throughout the fiscal year of 2001.

The PRTR manuals for the following industries have been completed.

1. Gasoline Service Station
2. Corrugated Packaging Industry
3. Forging Industry
4. Cemented Carbide Tool Industry

These manuals, along with those being already available, are as important as those from abroad for PRTR systems. By making full use of these results achieved, it is expected that industries will be making further efforts and have a better understanding of estimating the amounts of chemical substances released and transferred to the environment and that the Japanese management system of chemicals will become a good guide for other countries.

Finally, we would like to express our sincere appreciation to the kind cooperation extended from many people involved in the preparation of these manuals.

March 2002

The Society of Chemical Engineers, Japan

Outline of

Manual for Estimating Releases and Transfers for PRTR Chemicals by Industry

1. Gasoline Service Stations (SS)

(National Federation of Petroleum Commercial Association and Petroleum Association of Japan)

The ingredients of gasoline (premium, regular) and kerosene have been subject to reporting under the PRTR system. And the amounts of Class I Designated Chemical Substances released during the operations such as fuel loading into the underground storage tanks, motor vehicle refueling, and kerosene retailing should be estimated.

The Class I Designated Chemicals Substances which are contained in gasoline and kerosene are benzene, toluene, xylene, ethybenzene, and 1,3,5-trimethybenzene.

Estimations could be performed basically using emission factors (from refineries) which had been determined by the Petroleum Association of Japan.

(Refer to the tables for the content ratio of the Class I Designated Chemical Substances contained in gasoline and kerosene and the emission factors at SS.)

2. Corrugated Packaging Industry

(Japan Corrugated Case Association)

Ethylene glycol, toluene, xylene, di-n-butyl phthalate, boron and its compounds and dioxins have been subject to reporting under the PRTR system.

Major manufacturing processes are 1) corrugating process (forming, combining, drying, cutting, and palletizing) and 2) conversion process (printing, punching, forming, and palletizing). The Class I Designated Chemical Substance are released and transferred during the processes of combining and printing as well as from fuels used for drying.

While calculations were basically performed based upon the content of Class I Designated Chemical Substances contained in raw materials and other materials handled, emission factors obtained as averaged values from the actual facilities were also used in the case of the rate of waste generation and boron concentration in wastewater.

3. Forging Industry

(Japan Forging Association)

Chromium, nickel, and manganese which were contained in alloys and zinc nitrate,

basic lead silicate, xylene, and ethylene glycol monoethyl ether which were used in the processes have been subject to reporting under the PRTR system.

Major manufacturing processes are cutting, forming (die making, forging – lubrication, bonderizing, forging – trimming), heat treatment, finishing (shotblast, rust-proofing), machining – cleaning, coating, and inspection.

Calculations were performed using emission factors based on actual measurements and the results of waste generated during the manufacturing processes. For example, in the materials cutting process, the results showed that no waste has been produced in shearing and 4% of waste has been generated in sawing. For the bonderizing treatment, the emission factor for wastewater and gases generated during the tank cleaning process was determined to be 4.4%.

4. <u>Cemented Carbide Tool Industry</u>

(Cemented Carbide Tool Manufacturers' Association)

Chromium, molybdenum, and nickel which were contained in the materials and toluene, xylene, and acetonitrile which were used in the processes have been subject to reporting under the PRTR system.

Major manufacturing processes are blending, mixing/granulating, forming, grinding, coating, and inspection.

Calculations were basically performed using emission factors obtained as averaged values from the actual facilities of large companies. The metals have been transferred as waste and the organic chemicals mentioned above have been released to the atmosphere.

Chromium carbide used as the material has been handled as a metal because it turns into an alloy during the manufacturing processes.