

# Reducing Hazardous Chemical Substances

In-keeping with the provision of Environmentally-friendly products, we continue to implement initiatives aimed at eliminating, reducing or replacing hazardous chemical substances as part of production processes, both at home and overseas.

## Reducing usage of hazardous chemical substances

We have been working to reduce the usage of substances such as chlorinated organic solvents and chlorofluorocarbon alternatives (HCFCs) as part of various component manufacturing processes since fiscal 2003. We have continued to investigate the most suitable alternatives for each process to modify production processes and install new equipment accordingly. We are currently focusing on developing alternatives to cyanide compounds as one of our priority initiatives.

## Compliance with the PRTR Law\*

We report PRTR substances according on an individual Group company basis. The table on the right summarizes substances reported by the Citizen Group overall during fiscal 2008. We used six substances that are required to be reported and handled approximately 42 tons in total, one ton more than in fiscal 2007. The total volume of substances released or transferred during fiscal 2008 came to 28 tons, representing a 92% reduction compared to levels in fiscal 2003 (351 tons). As a result of revisions to the PRTR Law, the number of substances required to be reported has increased from 354 to 462. We therefore intend to investigate whether or not any of the newly included PRTR substances are contained in purchased products in the future in an effort to ensure compliance with the revised PRTR Law.

\* The Pollutant Release and Transfer Register (PRTR) Law requires the government, businesses and other entities to monitor, tabulate and declare data relating to the source and volume of hazardous chemical substances released into the environment and the volume of such substances contained in waste transferred from business premises.

## Example Initiative

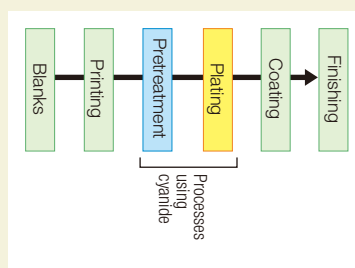
Citizen Seimitsu

### Efforts to reduce cyanide usage at factories in China

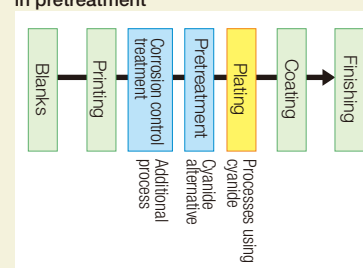
At Citizen Seimitsu's Watch Appearance Division, we have been working to reduce the usage of cyanide compounds since 2004. Plating and supplementary fluids for gold, silver and gold-copper alloy plating accounts for approximately 70% of the cyanide compounds that we use. The remaining 30% is used in the active treatment of metallic surfaces prior to plating (pretreatment). Unfortunately, there is no viable alternative to cyanide plating fluid at present. Nevertheless, we have developed a cyanide alternative for use in pretreatment and have already brought it into use at all of our domestic factories.

We currently use approximately 300kg of cyanide compounds annually as part of the pretreatment of metal watch faces at Walop Ltd. in China. Although we have completed inspections at the experimental stages, including the addition of corrosion control processes, we still need to work on wastewater facilities and completely change the line composition before we can start using cyanide alternatives. Work is scheduled to commence before the end of fiscal 2009, economic conditions permitting.

#### Current processes



#### Processes after discontinuing use of cyanide in pretreatment



### Volume of PRTR substances handled, released and transferred in fiscal 2008 (Tons)

Chemical substance	Volume handled	Volume released				Volume transferred	
		Released into atmosphere	Released into public waters	Released into soil at business premises	Disposed of by landfill at business premises	Transferred to sewage system	Transferred offsite
Xylene	13.4	2.7	0.0	0.0	0.0	0.0	4.6
Nickel compounds	11.4	0.0	0.0	0.0	0.0	0.0	9.9
Hydrogen fluoride and water soluble salts	11.0	0.0	0.6	0.0	0.0	0.0	8.6
Bisphenol-A epoxy resin (liquid)	3.9	0.0	0.0	0.0	0.0	0.0	0.0
Toluene	1.1	0.1	0.0	0.0	0.0	0.0	1.0
Inorganic cyanide compounds	1.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>41.8</b>	<b>2.8</b>	<b>0.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>24.1</b>

### Amount of PRTR Substances Discharged and Transported (t)

