

|                            |   |                          |                     |  |                                 |
|----------------------------|---|--------------------------|---------------------|--|---------------------------------|
| Address                    | No. 3, Bedok South Road, Singapore 469269.            |                          |                     |  |                                 |
| Lot area                   | 29m <sup>2</sup>                                      | Total floor area         | 46021m <sup>2</sup> |  |                                 |
| Establishment day          | 1977/7  | Employees                | 520persons          |  |                                 |
| ISO14001certification date | 1988/9  | ISO14001renewed          | 2009/6              |  |                                 |
| Major Products             | Resistor, ZNR, SAW, Environmental CommunicationFY2009 |                          |                     |  |                                 |
| Information disclosure     | 0items  | visitors on factory tour | 0persons            |  | collaboration with municipality |
| Contact                    | Lim Joo Hui   |                          |                     | TEL: (65) 62419866 ext 482   |                                 |

**Message from Compliance Administrator**

Panasonic Electronic Devices Singapore Pte Ltd (PEDSG) is a manufacturing plant located at the eastern side of Singapore surrounded by public and private housing estate. We produce electronic components such as resistors, ceramics, saw filters, capacitors, etc.

Our environmental policy is ' We are committed to protect the environment in its operations, by implementing Environmental Management System to continually improve on objectives that result in a cleaner environment, focusing qualitatively and quantitatively on four foundations, PEOPLE, CLEAN FACTORIES, GREEN PRODUCT and MANAGEMENT SYSTEM.'

Our company is committed to carry out our activities in accordance to the corporate objectives, namely, to produce energy efficient products, reduce CO2 emission in our manufacturing sites and to participate in the environmental activities.



Compliance Administrators  
**Victor Lim Hui Chuan**

**Main activities in FY2009**

| Target              | Result   |
|---------------------|--|
| Energy Conservation | CO2 Emission is reduce by 16% due to energy conservation activities                            |
| Water Conservation  | Water Amount is reduce by 18% due to conservation effort through better facilities maintenance |
| Waste Reduction     | Waste polymer solution maintained at almost the same level in Capacitor Factory                |

**Products of Environmentally-conscious information**



**"ZNR" Transient/ Surge Absorbers**

"ZNR" Transien/ Surge Absorber, is released through our continued research in ceramic material composition of ZnO varistor and manufacturing process, featuring large surge current handling capability and energy handling capability for absorbing transient overvoltage in compact size, **the wire used is lead free wire.**



**RESISTORS**

High reliability by using carbon film with taping style for automatic inserting machine having 4 colour code marking using UL84 V-0 approved coating for flame retardant type, **the wire use is lead free wire .**



**SP-Cap (Specialty Polymer Aluminum Electrolytic Capacitor)**

SP-Cap has an excellent ripple eliminating, transient response and noise absorption capability contributing to the high functionality and minimization of all applications like car and digital audio-video, personal computer and communication devices, **and is RoHS compliance .**



**Saw Device**

Saw Devices is mainly used for mobile communications devices, **and is leadfree and RoHS compliance .**

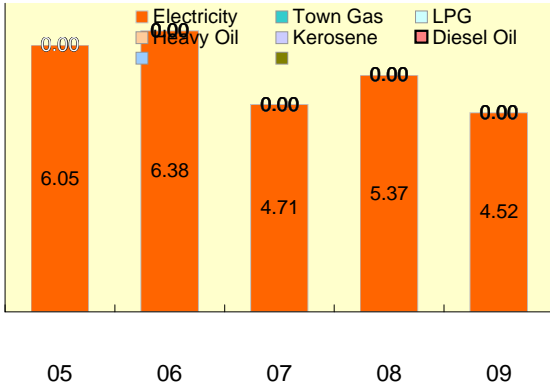
-> link to a product information web-site.

**Environmental performance data**

Year displayed in graph ex) 2009: April 1, 2008 - March 31, 2009

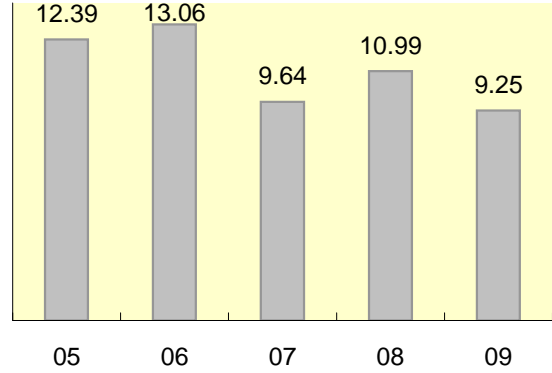
**Energy**

Unit: 1000kl



**CO2 Emission**

Unit: 1000t-CO2



Natural Energy

FY2009

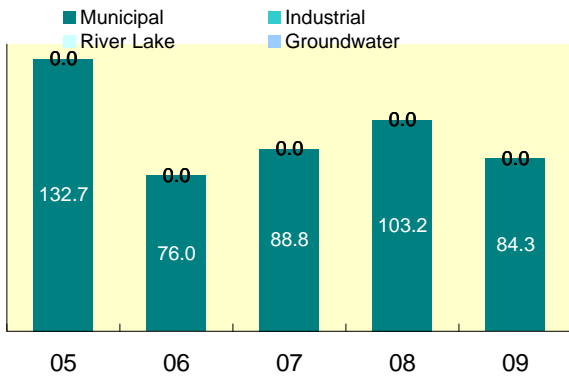
0.00 1000kWh

Calculation standards

Numerical values for respective countries listed on the Calculation Tools in GHG Protocol website by World Business Council for Sustainable Development (WBCSD) and World Resource Institute (WRI). Levels for 2002 (Electricity-Heat Steam Purchase\_tool1.0\_final) has been used for all years.

**Water**

Unit: 1000m<sup>3</sup>



Circulated water

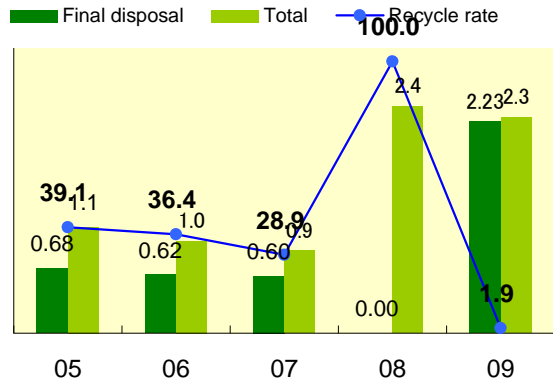
Rain-water

FY2009

0.00 m<sup>3</sup> 0.00 m<sup>3</sup>

**Waste**

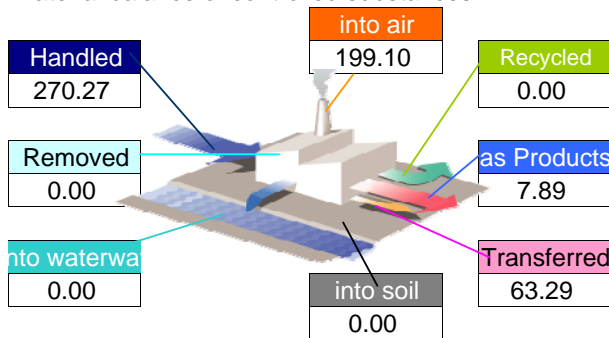
Unit: 1000t, %



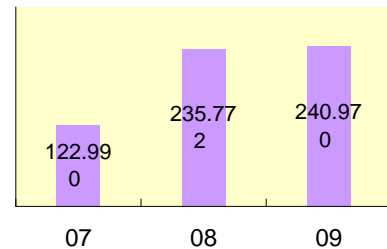
**Chemical substances**

09

Material balance of controlled substances FY2009



Key target reduction substances



About The Panasonic Group's Chemical Substances Management in Factories

[http://panasonic.net/eco/factory/chemical\\_substance/](http://panasonic.net/eco/factory/chemical_substance/)

About the above data

## Compliance

FY2009

## &lt;Air pollutant measurement results&gt;

|             | Unit               | Facility name | Legal limit | Voluntary limit | Average measured | Maximum measured | Measuring frequency |
|-------------|--------------------|---------------|-------------|-----------------|------------------|------------------|---------------------|
| SOx         | Nm <sup>3</sup> /h |               |             |                 | 0.00             |                  |                     |
|             |                    |               |             |                 | 0.00             |                  |                     |
|             |                    |               |             |                 | 0.00             |                  |                     |
| NOx         | ppm                |               |             |                 | 0.00             |                  |                     |
|             |                    |               |             |                 | 0.00             |                  |                     |
|             |                    |               |             |                 | 0.00             |                  |                     |
| Particulate | g/Nm <sup>3</sup>  |               |             |                 | 0.00             |                  |                     |
|             |                    |               |             |                 | 0.00             |                  |                     |
|             |                    |               |             |                 | 0.00             |                  |                     |

## &lt;Water pollutant measurement results&gt;

|            | Unit | Facility name    | Legal limit | Voluntary limit | Average measured | Maximum measured | Measuring frequency |
|------------|------|------------------|-------------|-----------------|------------------|------------------|---------------------|
| COD        | mg/l | PEDSG WWTP Efflu | 400.00      | 400.00          | 12.00            | 33.00            | Quarterly           |
|            |      |                  |             |                 | 0.00             |                  |                     |
|            |      |                  |             |                 | 0.00             |                  |                     |
| BOD        | mg/l | PEDSG WWTP Efflu | 600.00      | 600.00          | 33.00            | 82.00            | Quarterly           |
|            |      |                  |             |                 | 0.00             |                  |                     |
|            |      |                  |             |                 | 0.00             |                  |                     |
| Nitrogen   | mg/l |                  |             |                 | 0.00             |                  |                     |
|            |      |                  |             |                 | 0.00             |                  |                     |
|            |      |                  |             |                 | 0.00             |                  |                     |
| Phosphorus | mg/l |                  |             |                 | 0.00             |                  |                     |
|            |      |                  |             |                 | 0.00             |                  |                     |
|            |      |                  |             |                 | 0.00             |                  |                     |

## &lt;Noise and vibration&gt;

|           | Unit | Measurement Area    | Legal limit | Voluntary limit | Average measured | Maximum measured | Measuring frequency |
|-----------|------|---------------------|-------------|-----------------|------------------|------------------|---------------------|
| Noise     | dB   | DT<br>Company Bound | 75.00       | 75.00           | 70.00            | 72.00            | Once yearly         |
|           |      | NT<br>Company Bound | 65.00       | 65.00           | 61.00            | 62.00            | Once yearly         |
| Vibration | dB   | DT                  |             |                 | 0.00             |                  |                     |
|           |      | NT                  |             |                 | 0.00             |                  |                     |

\*Legal limit: The strictest value out of those specified by laws, ordinances or agreements.

\*N/A(not applicable):The meaning when the facility is exempted from the regulation.

## About excess of legal limit value

|  |
|--|
|  |
|--|

## Improvement of direction by government, or point outs by neighbor

| Occurrence situation | Countermeasure |
|----------------------|----------------|
|                      |                |
|                      |                |
|                      |                |

**Environmental Policy**

|  |   |   |          |         |          |  |  |  |                  |  |            |
|--|---|---|----------|---------|----------|--|--|--|------------------|--|------------|
| Panasonic Electronic Devices<br>Singapore Pte Ltd<br><hr/> PT. Panasonic Electronic Devices<br>Batam | <h2 style="margin: 0;">ENVIRONMENTAL MANAGEMENT<br/>POLICY</h2> | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%; text-align: center;">Approved</td> <td style="width:33%; text-align: center;">Checked</td> <td style="width:33%; text-align: center;">Prepared</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td colspan="2" style="text-align: center;">Effective Date :</td> <td style="text-align: center;">19/01/2009</td> </tr> </table> | Approved | Checked | Prepared |  |  |  | Effective Date : |  | 19/01/2009 |
| Approved   | Checked   | Prepared  |          |         |          |  |  |  |                  |  |            |
|  |   |   |          |         |          |  |  |  |                  |  |            |
| Effective Date :   |   | 19/01/2009  |          |         |          |  |  |  |                  |  |            |

We are committed to protect the environment in its operations. The Company has designed and implemented an Environment Management System to continually improve on objectives that result in a cleaner environment. To achieve this, the company shall qualitatively and quantitatively focus on the four foundations:

**PEOPLE**

1. Promote Environment awareness to all employees and personnel having business relationship with our company
2. Incorporate Environment elements into employee training programmes
3. Communicate Environmental requirements to all persons working for or on behalf of the company

**GREEN PRODUCT**

1. Implement Panasonic Corporation's
  - ◆ Chemical Substance Management Guidelines
  - ◆ Green Procurement Standard
2. Comply with statutory and regulatory requirements

**CLEAN FACTORIES**

1. Improve on facilities to reduce environmental impact
  - ◆ Reduce the amount use of Chemical Substances, release and transfer
2. Improve on production efficiency
  - ◆ Efficient use of energy
  - ◆ Efficient use of water
  - ◆ Promote 3R (Reduce, Reuse, Recycle) activities

**MANAGEMENT SYSTEM**

1. Maintain a Register of Environment Objectives
2. Review and improve objectives on a continual basis
3. Comply with Governing Environment Legislation
4. Institute Preventive Maintenance Programs to reduce or prevent pollution

The Policy shall be the guiding principle for Environment Protection in the company. The Policy is also made available to the public upon request to the Environment Management Representative.

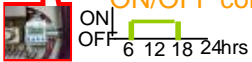
**Aiming to reduction of environmental impact**

We study the excellent energy saving practices of 33 Before/ After activities by other Panasonic group of companies and these examples range from thinning of lights, operation management, renewal of old equipments, Insulation of heater oven and etc were carried out in PEDSG. Continuation of PDCA cycle and understanding of the equipment consumption will be actively carry out with the implementation of the Meter Gauge.

**Timer control**  
 Cooling tower operation time controlled in relate to actual usage required.  
 Effect: Shut down CT when no operation at night.

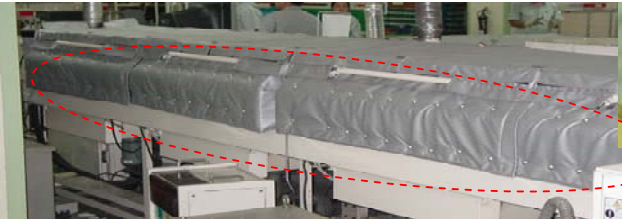


ON/OFF control by set time



12 hrs/day Operation

**Heat Insulator**  
 Heater oven surface temperature reduce with the installation of insulation jacket Effect: Reduction in heat loss in oven and additional heat load to the atmosphere



**Environmental Communication**



◀ **Tree Planting by employees of PEDSG**

About 52 employees of PEDSG and families participated in planting 10 papaya trees in Sengkang Riverside Park, one of Singapore new national parks on 2nd November 2008. This events was jointly organized by Singapore Panasonic Group of companies and it was attended by Prime Minister Lee Hsien Loong.



◀ **View of Sengkang Riverside Park**



◀ **PEDSG top management, MD Mr.Sugimoto san (right side) planting a tree with an**

**Emergency preparedness and response**

**Day and Night Fire Evacuation Drill / Chemical Spillage Exercise**

Yearly, our company conducted 2 fire evacuation drills to get our employees to familiarize themselves on what to do, how to react and where to assemble during an emergency when the emergency alarm in their building is sounded. Each year the factory Head of Department will nominate its department representatives for appointment with assignments such as safety representatives, fire fighters, fire wardens, first aiders, chemical spillage controllers to HR-GA Section, the nominees will be arranged for theory and practical training to equipt them with the necessary requirement knowledges. An evacuation drill will be conducted to ensure and confirm their capability to react during an emergency situation.



◀ **Chemical spill control drill exercise were demonstrate during the day drill to evaluate their effectivenss and readiness in handling chemical spill.**



◀ **Fire fighting skill was demonstrate by the selected and trained department fire fighters in the present of all the evacuated employees at the**