

## **Hydrochlorofluorocarbons (HCFCs) Phase-out Management Plan in Singapore**

Singapore is a signatory to the Montreal Protocol on Substances that Deplete the Ozone Layer and National Environment Agency (NEA) is the Designated National Authority administering the Protocol.

NEA regulates the imports and exports of Hydrochlorofluorocarbons (HCFCs) under the Environmental Protection and Management Act (EPMA) and its Regulations. Companies are required to obtain a Hazardous Substances (HS) licence from NEA for the import and/or export of HCFCs.

As part of the obligations to the Montreal Protocol, NEA has adopted a “Cap and Allocation Framework” on 1 Jan 2013 to freeze the HCFCs consumption at the baseline<sup>1</sup> of 216.1 ODPT, and gradually phase out the use of HCFCs by 1 Jan 2030. Under this framework, a HCFCs consumption quota<sup>2</sup> was introduced and allocated to the licence holders that are importing HCFCs for local use. This quota is issued annually, in the form of ODP Tonnes (ODPT) which can be converted to Metric Tonnes (MT) based on the types of HCFCs and ODP values.

### **Common HCFCs and their Ozone Depleting Potential (ODP<sup>3</sup>)**

<b>Common HCFCs</b>	<b>ODP</b>
R-22	0.055
R-123	0.020
R-124	0.022
R-141B	0.110
R-142	0.065
R-225	0.070

For example:

Convert metric tonnes (MT) to ODP tonnes (ODPT):

<b>HCFCs</b>	<b>ODP (A)</b>	<b>MT (B)</b>	<b>ODPT (A x B)</b>
R-22	0.055	50	$0.055 \times 50 = 2.750$
R-141B	0.110	50	$0.110 \times 50 = 5.500$

Convert ODP tonnes (ODPT) to metric tonnes (MT):

<b>HCFCs</b>	<b>ODP (A)</b>	<b>ODPT (C)</b>	<b>MT (C ÷ A)</b>
R-22	0.055	1	$1 \div 0.055 = 18.182$
R-141B	0.110	1	$1 \div 0.110 = 9.091$

<sup>1</sup> Consumption Baseline (216.1 ODPT) is calculated based on the annual average production and consumption in Year 2009 and 2010.

<sup>2</sup> Consumption Quota (in ODP Tonnes) is defined as the quantity of HCFCs imported for usage in Singapore.

<sup>3</sup> Ozone Depleting Potential (ODP) is the relative amount of degradation to the ozone layer relative to that for a unit mass emission of CFC-11.