

# SMC's Activities for Green Procurement Guide for SMC's Environmentally Friendly Products



**I LOVE  
THE EARTH  
I LOVE  
GREEN PRODUCTS**

SMC's symbol for green procurement

**SMC's mission recognizes that the conservation of the earth's environment is one of the most important challenges facing human beings and that its contribution is to develop and supply environmentally friendly products.**



**SMC Corporation**

## EU directives

Following the announcement of the latest EU (European Union) directive on environmentally harmful substances, customers requesting Green Procurement options has increased substantially.

### WEEE directive

**W**aste **E**lectrical and **E**lectronic **E**quipment

\* Directive for collecting and recycling electrical and electronic equipment waste

### RoHS directive

The **R**estriction of the use of certain **H**azardous **S**ubstances in electrical and electronic equipment

\* Directive for restricting 6 specific substances contained in electrical and electronic equipment

**Mercury, Lead, Cadmium, Hexavalent Chromium, PBB, and PBDE**

## RoHS directive

RoHS directive aims to abolish or reduce the use of heavy metals such as mercury, lead, cadmium, hexavalent chromium as well as, bromic fire retardants such as PBB and PBDE, by June 31, 2006.

## Examples of the effects to the human body of environmentally harmful substances

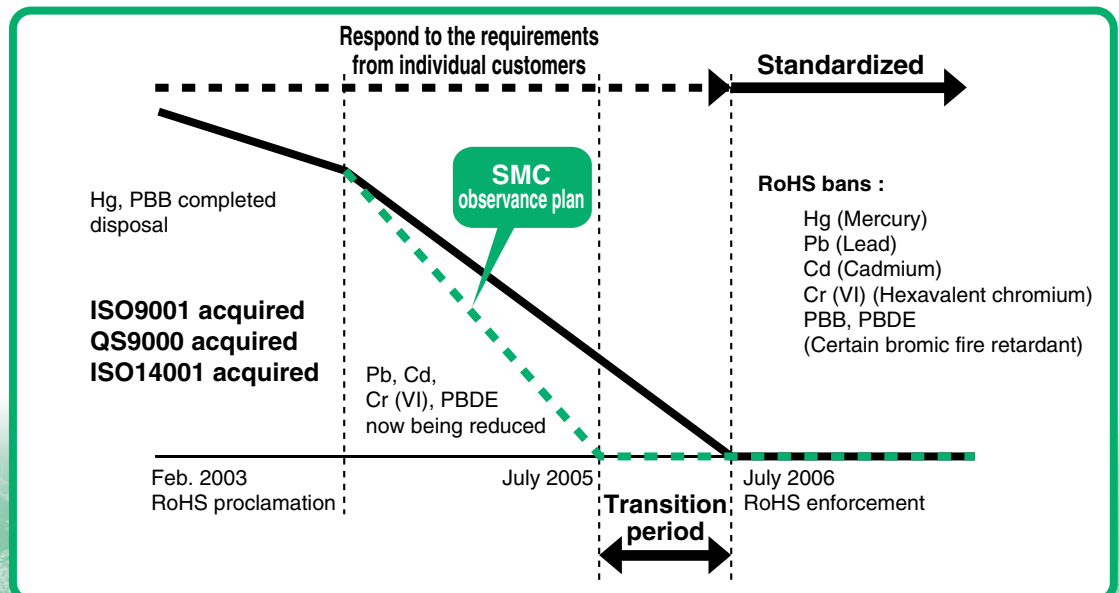
Substance	Example of effects	Remarks
<b>Hg</b> (Mercury)	Allergic dermatitis/ CNS (Minamata disease)	The only poisonous metal which stays liquid at normal temperature.
<b>Pb</b> (Lead)	Acute intoxication (Paralysis, anemia, nephropathy)/ Cerebral disorder	All soluble lead compounds are poisonous. Taking in 0.5g leads to fatal condition.
<b>Cd</b> (Cadmium)	Dyspnea/ nephropathy / calcium metabolism disorder (Arthritis disease)	Cadmium salt and Cadmium steam is poisonous. Heating causes poisonous gas.
<b>Cr (VI)</b> (Hexavalent chromium)	Lung cancer/ Liver disorder / Nasal septum perforation	Highly oxidized and poisonous. Contact with skin causes an ulcer.
<b>PBB</b>	Cerebral atrophy/ sensory disturbance/ Harmful to human body	Incineration causes DXN. (dioxin)
<b>PBDE</b>	Cerebral atrophy/ sensory disturbance/ Harmful to human body	Incineration causes DXN. (dioxin)

February 2003 RoHS directive proclamation

July 2006 RoHS directive enforcement

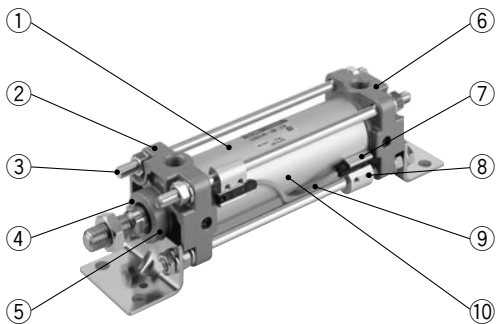
The sale of products containing environmentally harmful substance will be prohibited in EU.

## SMC's Green Products Plan



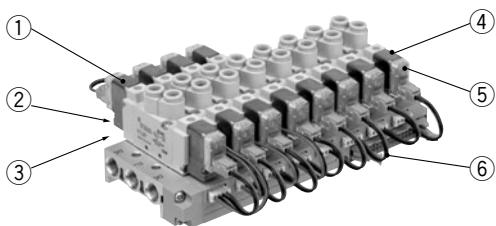
# Green Changes

## Air cylinder



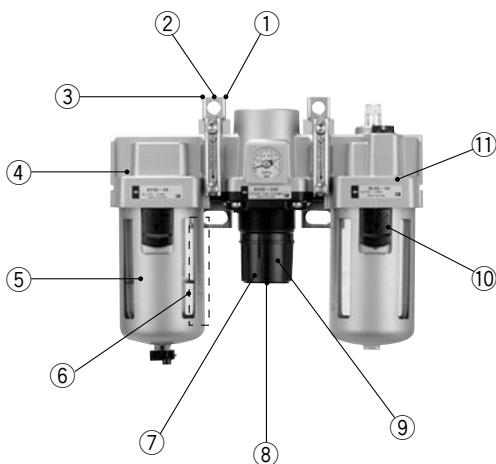
No.	Parts name	Environmentally harmful substance	Changes
①	<b>Piston</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
②	<b>Spring washer</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
③	<b>Tie-rod</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
④	<b>Rod cover</b>	Hexavalent chromium contained in surface treatment of coating bed	Changed to hexavalent chromium-free surface treatment
⑤	<b>Bushing</b>	Lead exceeding material standard	Changed to lead-free material
⑥	<b>Head cover</b>	Hexavalent chromium contained in surface treatment of coating bed	Changed to hexavalent chromium-free surface treatment
⑦	<b>Auto switch</b>	Lead contained in parts and soldering	Changed to lead free parts and soldering
⑧	<b>Mounting screw</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium free surface treatment
⑨	<b>Lead wire</b>	Lead contained in coating material Polyvinyl chloride (PVC)	Changed to lead-free PVC Special handling on customer demand (Changed to a material which customer requires)
⑩	<b>Magnet</b>	Hexavalent chromium contained in surface treatment	Changed to PVC-free as special handling

## Solenoid valve



No.	Parts name	Environmentally harmful substance	Changes
①	<b>Body</b>	Hexavalent chromium contained in surface treatment of coating bed	Changed to hexavalent chromium-free surface treatment
②	<b>Spool</b>	Lead exceeding material standard	Changed to a lead reduced material
③	<b>Insert nut</b>	Lead exceeding material standard	Changed to lead-free material
④	<b>Print circuit board</b>	Lead contained in parts and solder	Changed to lead-free parts and soldering
⑤	<b>LED</b>	Arsenic contained in semiconductor parts	Currently no change
⑥	<b>Lead wire</b>	Lead contained in coating material Polyvinyl chloride (PVC)	Changed to lead-free material (Changed to the material which customer requires)
	<b>Set screws</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment

## FRL (combination unit)



No.	Parts name	Environmentally harmful substance	Changes
①	<b>Bracket; spacer bracket</b>	Hexavalent chromium contained in treatment after plating	Changed to hexavalent chromium-free treatment after plating
②	<b>Retainer; Spacer bracket</b>	Hexavalent chromium contained in treatment after plating	Changed to hexavalent chromium-free surface treatment after plating
③	<b>Spacer; spacer bracket</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
④	<b>Body of filter, regulator, lubricator</b>	Hexavalent chromium contained in surface treatment of coating bed	Changed to hexavalent chromium-free surface treatment
⑤	<b>Bowl guard of filter, lubricator</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
⑥	<b>Bowl guard printing of filter, lubricator</b>	Lead and hexavalent chromium contained in ink	Changed to lead and hexavalent chromium-free ink
⑦	<b>Pressure gauge</b>	Solder for the leads of the Bourdon's tube	Changed to lead-free soldering
	<b>Tap tight screw for pressure gauge, bonnet mounting</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
⑧	<b>Valve</b>	Lead contained in adhesive for rubber lining	Changed to lead-free adhesive
	<b>Adjusting screw assembly</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
	<b>Cover adjusting spring</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
⑨	<b>Diaphragm holder; diaphragm assembly</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
	<b>Diaphragm seat; diaphragm assembly</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface treatment
	<b>Diaphragm; diaphragm assembly</b>	Polyvinyl chloride (PVC) contained in rubber	Changed to PVC-free rubber material
⑩	<b>Oil passage</b>	Material, Polyvinyl chloride (PVC)	Special handling on customer demand (Changed to a material which customer requires)
⑪	<b>Damper holder of lubricator</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface
	<b>Tap tight screw for assembly</b>	Hexavalent chromium contained in surface treatment	Changed to hexavalent chromium-free surface



## Identification of Green Products

	RoHS	RoHS + PVC
<b>Part no.</b>	Standard part no.	Standard part no. + -HH as suffix
<b>Product identification</b>	Add [G] next to lot no. on product label	Add [H] next to lot no. on product label
(Samples of label)		



## Request for Changing to Green Products

Because of potential lead-time problems which could affect our customers, environmentally harmful components will be gradually replaced by “Green alternatives” on a part-by-part basis until all existing component stocks have finally been exhausted.

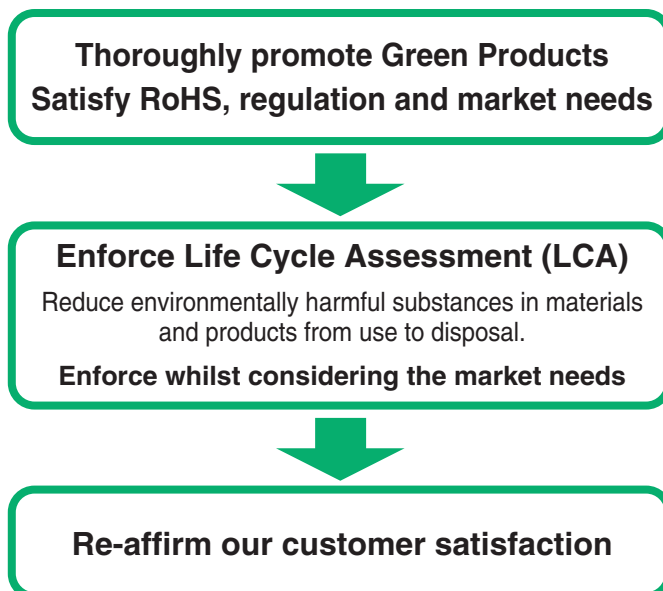
Where possible, we will advise and seek approval from our customers before changing component parts containing environmentally harmful substances.

We really appreciate your understanding and co-operation.  
Please contact your SMC sales representative for more details.



## SMC Future Action

**Customer satisfaction will be enhanced by promoting our commitment to environmentally friendly products.**



### SMC Corporation

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