

### Material Substitution for Additional Four Substances Restricted by EU RoHS Recast Directive for Inverters and Inverter Options

Thank you for your continued patronage of Mitsubishi Electric drive control products.

To amend EU RoHS Recast Directive 2011/65/EU (RoHS II), the Directive (EU) 2015/863 was published. Four phthalates (DEHP, BBP, DBP, and DIBP) were added to the list of restricted substances, thus the list contains 10 substances in total.

Mitsubishi Electric general-purpose inverters and inverter options are included in "Category 9: Industrial monitoring and control instruments". The products sold and used in Europe should be compliant with EU 2015/863 from July 22, 2021.

The products manufactured in January 2021 or later will be compliant with EU 2015/863 as described in the document on page 4).

General specifications, performance specifications, functions, and outline dimensions of the products will not be affected.

#### 1. Products to Be Compliant with EU 2015/863

##### (1) Inverters and option units

| Classification |                              | Series name / model                                  | Remarks                        |
|----------------|------------------------------|--|--------------------------------|
| Inverter unit  | 700 series                   | FR-A701  | 400 V class (FR-A741) only     |
|                |                              | FR-D700  |                                |
|                |                              | FR-E700  |                                |
|                |                              | FR-EJ700   | 400 V class (FR-EJ740) only    |
|                |                              | FR-F700PJ  |                                |
|                | 800 series                   | FR-A800  | 200/400/690 V class only       |
|                |                              | FR-A800-R2R/-CRN/-LC/-AWH/-ELV (FR-A800 Plus series) | 200/400/690 V class only       |
|                |                              | FR-CC2   | 400 V class only               |
|                |                              | FR-E800  |                                |
|                |                              | FR-F800  | 200/400 V class only           |
|                | FR-CS80                      |  |                                |
| Option unit    | Brake unit                   | FR-BU2   | 400 V class (FR-BU2-H[K]) only |
|                | High power factor converter  | FR-HC2   |                                |
|                | Power regeneration converter | FR-XC  |                                |

|                      |               |              |  |   |
|----------------------|---------------|--------------|--|---|
| <b>Date of issue</b> | November 2020 | <b>Title</b> | Material Substitution for Additional Four Substances Restricted by EU RoHS Recast Directive for Inverters and Inverter Options | Mitsubishi Electric Corp., Nagoya Works<br>5-1-14 Yada-minami, Higashi-ku, Nagoya 461-8670<br>Tel.: +81 (52) 721-2111 Main line |
|----------------------|---------------|--------------|--|---|

## (2) Inverter options

| Classification                           | Main applicable inverters | Series name / model   | Remarks   |
|--|---------------------------|---|---|
| Plug-in option / control terminal option | FR-A800                   | FR-A8AP/A8AL/A8APR/A8APS/A8APA/A8AL/A8APD/A8AX/A8AY/A8AR/A8AZ/A8NC/A8NL/A8NCE/A8NCG/A8NCA/A8ND/A8NP/A8NS/A8NF/A8TR/A8TP/A8AVP/A8VPB-H/A8BC-H[]K/A8MC-H[]K/A8BL1-H[]K/A8BL2-H[]K |   |
|  | FR-E800                   | FR-A8AP/A8AX/A8AY/A8AR/A8NC/A8ND/A8NP(-E kit)   |   |
|  | FR-A701                   | FR-A7AP/A7AL/A7AZ/A7NCE/A7NS/A7NF/A7PS  |   |
|  | FR-E700                   | FR-A7AX/A7AY/A7AR/A7NC/A7ND/A7NP/A7NL(-E kit)<br>FR-E7DS/E7TR   |   |
| Cable                                    | FR-A800                   | FR-V7CBL5/15/30   |   |
|  | Common                    | FR-CB20[]   |   |
| Operation panel / parameter unit         | FR-A800                   | FR-LU08(-01)  |   |
|  | FR-E700                   | FR-PA07   |   |
|  | Common                    | FR-PU07, FR-PU07BB(-L), FR-ADP  |   |
| EMC Directive compliant noise filter     | FR-E700                   | FR-S5NFSA-0.75K/1.5K,<br>FR-E5NF-H0.75K/H3.7K/H7.5K   |   |
|  | Common                    | SF[]  | Filters used with the 700/800 series inverters only |
| Filter/reactor                           | FR-XC                     | FR-XCB(-H)[]K, FR-XCG(-H)[]K, FR-XCL(-H)[]K   |   |
|  | Common                    | FR-HAL(-H)[]K, FR-HEL(-H)(N)[]K,<br>FR-BLF, FR-BSF01  |   |
| Brake resistor                           | Common                    | FR-ABR(-H)0.4K to 22K   |   |
| Attachment                               | FR-A800                   | FR-A8CN01 to 09, FR-A8TAT, FR-F8AT01<br>FR-A8CU[]-N, FR-A8CW[]-N, FR-A8SR[]   |   |
|  | FR-E800                   | FR-E8AT03/04, FR-E8CN01 to 06   |   |
|  | FR-A700                   | FR-A7CN01 to 11   |   |
|  | FR-E700                   | FR-E7CN01 to 06, FR-UJA01 to 03, FR-E5T(-02),<br>FR-E7CV01 to 04, FR-E7AT01 to 03   |   |
|  | FR-XC                     | FR-XCCP[], FR-XCCU[]  |   |
|  | Common                    | FR-A5AT01 to 05, FR-AAT01 to 09, 21 to 24, 27   |   |

**2. Manufacture Date of the Compliant Products**

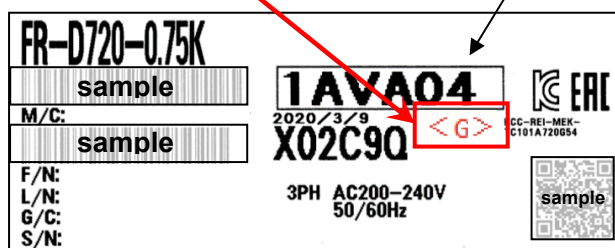
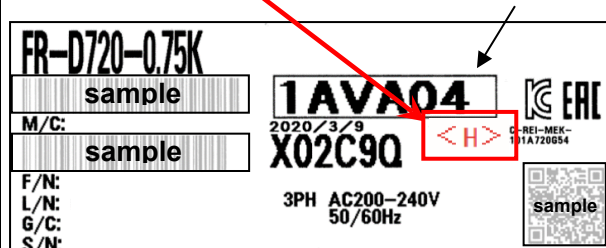
The products manufactured in January 2021 or later will be compliant with EU 2015/863.

### 3. Product Identification

An <H> mark\*1 will be indicated on the packaging label or packaging of the product in which the concentrations of 10 restricted substances are less than the values specified by the RoHS II Directive. (A mark may be indicated on a different place depending on the model.)  
 <H> marks will be indicated for the products after the factory shipment in December 2020.

#### Example of the <H> mark indicated on the packaging label

The <H> mark is indicated near the model code (six characters) in the following example.

| Before  | After  |
|---|--|
| <p>&lt;G&gt; Indicating that the concentrations of six restricted substances are less than restricted values*2.</p> | <p>&lt;H&gt; Indicating that the concentrations of 10 restricted substances are less than restricted values*2.</p> |
| <p>Packaging label</p>            | <p>Packaging label</p>          |

\*1 The <H> mark does not assure the product is compliant with EU 2015/863. It is an indication, used for Mitsubishi Electric products only, just indicating that the concentrations of 10 restricted substances are less than the values specified by the RoHS II Directive.

The indication method may differ when the way to identify products changes.

\*2 For the applications mentioned in the exemptions in the RoHS II Directive, the concentrations of the restricted substances may exceed restricted values.

### 4. Others

#### (1) Notes

- Even after January 2021, non-compliant products will be shipped unless the remaining inventory is consumed. If you require compliant products, please contact your sales representative.
- If you have our reply to the inquiry about the manufacture date of compliant products, check the reply.

#### (2) EU Directives

For information on compliance with EU Directives other than RoHS Directive, please contact your sales representative.

#### (3) Appendix

"Action for the phthalates added to the EU RoHS Directive list of restricted substances"

## [Appendix] "Action for the phthalates added to the EU RoHS Directive list of restricted substances"

Aug. 2018

**Action for the phthalates added to the EU RoHS Directive list of restricted substances**

In June 2015 the EU commission published a new Directive (EU) 2015/863 amending EU RoHS 2 Directive 2011/65/EU by adding 4 phthalates to the list of restricted substances. It will apply to products that are included in "Category 9 : Industrial monitoring and control instruments" from 22 July 2021. After that day only products that comply with Directive (EU) 2015/863 may be sold and used in Europe.

We would like to inform you how to response to our subject products.

**1. Outline of Directive(EU)2015/863****(1) Restricted substances added to the list and maximum concentration values**

\* The denominator for calculating the content shall be the mass of the homogeneous material<sup>\*1</sup>

\* A review of the list of restricted substances will be carried out periodically.

| Restricted substances added to the list | Maximum concentration values                                 |
|---|--|
| Bis(2-ethylhexyl) phthalate (DEHP)      | Maximum 0.1%(1000ppm) by weight of the homogeneous material. |
| Benzyl butyl phthalate (BBP)            |  |
| Dibutyl phthalate (DBP)                 |  |
| Diisobutyl phthalate (DIBP)             |  |

\*1 "Homogeneous material" means one material of uniform composition throughout that cannot be disjoined or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.

**(2) Product categories and deadlines**

Deadlines differ by each product category

| Categories |  | Deadlines    |
|------------|--|--------------|
| 1          | Large household appliances   | 22 July 2019 |
| 2          | Small household appliances   |              |
| 3          | IT and communications equipment  |              |
| 4          | Consumer equipment   |              |
| 5          | Lighting equipment   |              |
| 6          | Electrical and electronic tools  |              |
| 7          | Toys, leisure and sports equipment   |              |
| 8          | Medical devices  | 22 July 2021 |
|            | In-vitro diagnostic medical devices  |              |
| 9          | Monitoring and control instruments   |              |
|            | <b>Industrial monitoring and control instruments</b>                                 |              |
| 10         | Automatic dispensers   | 22 July 2019 |
| 11         | All other electrical and electronic equipment not covered by any of these categories |              |

**2. Company's actions****(1) Start of compliant production**

Appropriate measures will be taken for products produced from Jan.2021. (Exempted products and dedicated products for Japanese domestic market are not included).

Please refer to the sales and documents published by each product group from now on.

**(2) Identification of products that do not use the restricted substances**

In addition to the original 6 restricted substances, products that contain less than the permitted level of substances shown in 1-(1) will have the following mark on packing labels: "<H>".

Note) The "<H>" mark does NOT indicate conformity with the RoHS directive, it is an indicator used for stock control within the Mitsubishi Electric Group.

Phthalates are a type of plasticizer added to plastics to increase their flexibility, transparency, durability and life.

Mitsubishi Electric Corporation  
Factory Automation Systems Group