February 2018

RE: REACH SVHC Candidate List as of 01/15/2018 Product Content Declaration

Dear Customer:

Intel manufactures a wide range of products, from microprocessors, through embedded controllers, up to complete OEM systems. A large number of subassemblies and components are purchased from other manufacturers. Intel goes to great lengths to make sure all our products meet applicable legal requirements, and we continually monitor changes in those requirements. We have surveyed our products, and to the best of our knowledge, Intel products are in compliance with all applicable national and international laws and regulations, including those that may restrict the materials content of certain products.


In addition, the European Union's REACH regulation (Regulation No 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals) places obligations as manufacturers, importers and downstream users of chemical substances and preparations. It also places obligations on importers of products. Although the REACH regulation became effective on June 1, 2007, because of delayed application dates, REACH obligations are staggered and became effective in stages. At this time, we are not aware of any products manufactured by Intel that would require substance registration under REACH.

Article 33 of REACH requires suppliers to inform recipients if an article contains more than 0.1% (by weight per article) of any substance(s) on the candidate list of Substances of Very High Concern (SVHC). Based on the European Court of Justice (ECJ) ruling on September 10, 2015, each component of a complex product is considered as an article. The European Chemical Agency (ECHA) periodically publishes SVHC candidate list on their web site at URL: http://echa.europa.eu/candidate-list-table. ECHA released the latest candidate list of SVHC to bring the total number to 181 on January 15, 2018. To the best of our knowledge, except for the 6 SVHC listed in Attachment 1, the other SVHC are not present above 0.1% by weight in any article of Intel's products. If you want to know which specific Intel products contain SVHC above threshold, please contact your Intel Representative or productecology@intel.com.

Various raw materials of glass and ceramic, such as diboron trioxide, lead oxide, lead tetraoxide, silicic acid, lead salt, etc, were included in the candidate list of SVHC. These substances were historically reported as constituents of glass and ceramic in electronic components. This was done either (1) as a shortcut in which the composition of glass and ceramic was described as the sum of its raw materials or (2) because of the difficulty of entering glass or ceramic as a substance in certain databases. After high temperature processing, these substances are chemically
transformed and react with the other raw materials to form a glass/ceramic matrix. Therefore, glass and ceramic do not contain the raw materials used to make them. Intel products contain glass and ceramic, but do not contain these SVHC mentioned above. Our statement is in alignment with our supplier and industry positions.

We encourage all companies to participate in electronic industry efforts to update the new international IEC 62474 material declaration standard (which replaces the JIG 101 Material Declaration Standard starting in Q2 2012) to incorporate the REACH Article 33 reporting requirements. Participation in an industry-wide approach will help maximize efficiency of reporting throughout the supply chain and reduce the inefficiencies experienced under EU RoHS when each company developed their own unique declaration format.

With regard to the requirement of Article 67 of REACH: A substance on its own, in a preparation or in an article, for which Annex XVII contains a restriction shall not be manufactured, placed on the market or used unless it complies with the conditions of that restriction. To the best of our knowledge, none of Intel’s products contain any substances subject to any Annex XVII restrictions.

The information provided regarding the material content of our products is true and correct to the best of our knowledge and Intel has systems and due diligence processes in place to determine the content of our products and ensure compliance with all applicable laws and regulations. This information in connection with our products is subject to and limited by Intel’s standard terms and conditions for sale of such products.¹

If you have any questions concerning this letter, please contact your Intel Representative. We will continue to monitor the status of future REACH SVHC candidate lists as part of our on-going compliance activities.

Sincerely,

Youjiang Chen, Ph.D.
CPRS Product Ecology Chemical Risk Assessment Program Manager
Intel Corporation
productecology@intel.com

¹ EXCEPT AS PROVIDED IN INTEL’S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.
Attachments
1 – List of SVHC present above 0.1% by weight in certain components of Intel's products considered as articles
2 – The latest SVHC added into candidate list on January 15, 2018
3 – European Semiconductor Industry Association (ESIA) Statement on boron trioxide
4 – European Semiconductor Industry Association (ESIA) Statement on lead oxide
List of SVHC present above 0.1% by weight in certain components of Intel’s products considered as articles

SVHC = Substances of Very High Concern

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS#</th>
<th>EC# / Index #</th>
<th>ECHA Candidate List Date</th>
<th>&gt; 0.1 wt% in Article (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis(2-ethylhexyl) phthalate (DEHP)</td>
<td>117-81-7</td>
<td>204-211-0</td>
<td>17.12.2014 28.10.2008</td>
<td>Yes</td>
</tr>
<tr>
<td>Tris(2-chloroethyl) phosphate (TCEP)</td>
<td>115-96-8</td>
<td>204-118-5</td>
<td>13.01.2010</td>
<td>Yes*</td>
</tr>
<tr>
<td>1,2-dimethoxyethane, ethylene glycol dimethyl ether (EGDME)</td>
<td>203-794-9</td>
<td>110-71-4</td>
<td>18.06.2012</td>
<td>Yes</td>
</tr>
<tr>
<td>Lead titanium trioxide</td>
<td>235-038-9</td>
<td>12060-00-3</td>
<td>19.12.2012</td>
<td>Yes</td>
</tr>
<tr>
<td>4,4'-isopropylidenediphenol (BPA)</td>
<td>80-05-7</td>
<td>201-245-8</td>
<td>12.01.2017</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* - TCEP is present above 0.1% by weight in an acetate tape used in some server systems and spares through Q2’2018. This tape has been replaced in manufacturing by a TCEP-free tape.
The latest SVHC* added into candidate list on January 15, 2018

* SVHC = Substances of Very High Concern

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS#</th>
<th>EC#/Index #</th>
<th>ECHA Candidate List Date</th>
<th>&gt;0.1 wt% in Article (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benz[a]anthracene</td>
<td>56-55-3, 1718-53-2</td>
<td>200-280-6</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
<tr>
<td>Cadmium carbonate</td>
<td>513-78-0</td>
<td>208-168-9</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
<tr>
<td>Cadmium hydroxide</td>
<td>21041-95-2</td>
<td>244-168-5</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
<tr>
<td>Cadmium nitrate</td>
<td>10022-68-1, 10325-94-7</td>
<td>233-710-6</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
<tr>
<td>Chrysene</td>
<td>218-01-9, 1719-03-5</td>
<td>205-923-4</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
<tr>
<td>Dodecachloropentacyclo[12.2.1.16,9.02;13.05,10]octadeca-7,15-diene (&quot;Dechlorane Plus&quot;™)</td>
<td>-</td>
<td>-</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
<tr>
<td>Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP)</td>
<td>-</td>
<td>-</td>
<td>15.01.2018</td>
<td>No</td>
</tr>
</tbody>
</table>
ESIA Statement on Boron Trioxide

The EU REACH Regulation (EC) No 1907/2006 regulates the use of chemical substances within the EU. It establishes requirements not only for manufacturers, importers and downstream users of chemical substances but also for manufacturers and importers of articles within the EU.

The European semiconductor industry association (ESIA) represents amongst its membership, the manufacturers of semiconductor devices (‘microchips’) under REACH; manufacturers and importers of articles. Products delivered to our customers are considered articles without intended release of substances, under the EU REACH Regulation.

The EU REACH Regulation requires communication to customers for articles containing a Substance of Very High Concern (SVHC) above 0.1% by weight. It requires notification to the European Chemical Agency (ECHA) for Substance of Very High Concern (SVHC) exceeding one metric tonne per year and included in articles above 0.1% by weight.

EU Decision number ED/87/2012 dated 2012/06/18 added Diboron Trioxide (EU# 215-125-8/CAS# 1303-86-2) to REACH Annex XIV as a substance of very high concern (SVHC). The SVHC is boron trioxide itself.

Articles manufactured within the semiconductor industry may include Boron containing glass. Diboron trioxide may have been declared as a substance exceeding 0.1% by weight within various electronic glass or parts containing glass.

Glass is classified under REACH as an UVCB substance (substance of unknown or variable composition, complex reaction products or biological material) containing the elements silica, calcium, sodium, potassium, magnesium and other cations bonded together by oxygen; these elements are bonded into a non crystalline molecular structure with completely different properties in comparison to the starting raw materials. Glass is not a mixture of compounds such as metals or oxides like SiO2, Na2O, CaO, B2O3, etc.

Glass does not contain the oxidized chemicals in the different raw materials. Therefore as Boron trioxide is not present in the glass in its molecular form or Boron oxide cannot be released under normal or reasonably foreseeable conditions there are no obligations applying under the EU REACH regulation of communication to customers and notification to ECHA for articles containing glass, due to the inclusion of Diboron Trioxide (EU# 215-125-8/CAS# 1303-86-2) to REACH Annex XIV.

About ESIA: The European Semiconductor Industry Association represents and promotes the interests of the European-based semiconductor industry and advocates for its international competitiveness. The industry provides the key enabling technology solutions for society in the fields of energy efficiency, mobility, health care, security and across the ICT sector including the realisation of the smart grid and more efficient lighting. The industry was ranked as the most R&D intensive sector by the European Commission in 2011. This sector supports around 110,000 jobs directly and up to 500,000 jobs in Europe, operating in a worldwide market valued at over $ 299 billion (over € 215 billion) in 2011.
Website: www.eeca.eu/esia

Industry Association of:
European Electronic Components Industry Association
ESIA Statement on Lead Monoxide Used in Glass

The EU REACH Regulation (EC) No 1907/2006 regulates the use of chemical substances within the EU. It establishes requirements not only for manufacturers, importers and downstream users of chemical substances but also for manufacturers and importers of articles within the EU.

The European semiconductor industry association (ESIA) represents amongst its membership, the manufacturers of semiconductor devices (‘microchips’). ESIA members are manufacturers and importers of articles. Products that our members deliver to their customers are considered articles without intended release of substances under the EU REACH Regulation.

The EU REACH Regulation requires communication to customers for articles containing Candidate Substances of Very High Concern (SVHC) above 0.1% by weight. It requires notification to the European Chemical Agency (ECHA) for Candidate Substances of Very High Concern (SVHC) exceeding one metric tonne per year and included in articles above 0.1% by weight.

EU Decision number ED/169/2012 dated 2012/12//19 added Lead Monoxide (EU# 215-267-0/CAS# 1317-36-8) to REACH Annex XIV as a candidate substance of very high concern (SVHC). The SVHC is lead monoxide itself.

Articles manufactured within the semiconductor industry may include ‘Glass Containing Lead’. Lead Monoxide may have been declared as a substance exceeding 0.1% by weight within electronic glass or various parts containing glass.

Glass is classified under REACH as an UVCB substance (substance of unknown or variable composition, complex reaction products or biological material) containing the elements silicon, calcium, sodium, potassium, magnesium and other cations bonded together by oxygen; these elements are bonded into a non crystalline molecular structure with completely different properties in comparison to the starting raw materials. Glass is not a mixture of compounds such as metals or oxides like SiO₂, Na₂O, CaO, B₂O₃, PbO, etc.

Oxidized chemicals may be added to glass, but after the firing process, glass does not contain these chemicals as oxides. Therefore, Lead Monoxide is not present in the glass in its molecular form. Hence the inclusion of Lead Monoxide to REACH Candidate List of Substances of Very High Concern for Authorization creates no obligation for manufacturers and importers of articles to communicate ‘Glass Containing Lead’ to customers.

Glass Alliance Europe (*) (European Federation of glass industries) fully supports this statement. Raw materials that are used in the manufacture of glass meet the definition of transported isolated intermediates as they are produced elsewhere and transformed into a new substance (glass) at the glass manufacturers’ site.

(*) More info under: www.glassallianceeurope.eu
About ESIA: The European Semiconductor Industry Association (ESIA) is the voice of the Semiconductor Industry of Europe. Its mission is to represent, promote and defend the common interests of the Europe based semiconductor industry towards the European Institutions and stakeholders in order to ensure a sustainable business environment and foster its global competitiveness. As a provider of key enabling technologies the industry creates innovative solutions for industrial development, contributing to economic growth and responding to major societal challenges. Being ranked as the most R&D intensive sector by the European Commission, the European Semiconductor ecosystem supports approx. 200,000 jobs directly and up to 800,000 induced jobs in systems, applications and services in Europe. Overall, micro and nano-electronics enable the generation of at least 10% of GDP in Europe and the world.

Website [http://www.eeca.eu/](http://www.eeca.eu/)