

# Title: Chemical Material Selection Guideline

Disclaimer: This publication is intended for guidance only and while the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user’s own risk. This is not intended to be a comprehensive treatment of the subject matter and is not intended to provide legal advice or to serve as a substitute for legal counsel. No representations or warranties are made with regards to its completeness or accuracy and no liability will be accepted for damages of any nature whatsoever resulting from the use of or reliance on the information. You should consult legal counsel to determine the applicable law for your situation.

<p><b><u>Mission &amp; Purpose</u></b></p>	<p>Intel Corporation strives to use materials and produce products in a safe and environmentally responsible manner. This guide helps to identify materials that are currently not allowed, regulated and/or subject to potential future regulations. It is the expectation that Intel’s supply chain work in partnership to ensure that <b><u>the most benign, technologically feasible materials are being selected for Intel’s operations.</u></b> Please note this is not a comprehensive list but rather guidance for suppliers to understand Intel’s goals for Responsible Chemical sourcing.</p>
<p><b><u>Not Allowed</u></b></p>	<p>Any banned chemical per Country Specific Regulations</p> <p>-----</p> <p>Polychlorinated biphenyls (PCB)          Note: US EPA Website on PCBs [<a href="#">Website</a>]</p> <p>-----</p> <p><u>Ozone Depleting Substances (ODS) –</u></p> <ul style="list-style-type: none"> <li>• Class I ODS (CFCs) will not be used in any Intel application, including manufacturing processes, any refrigeration or fire suppression equipment.</li> <li>• Class II ODS (HCFCs) may not be used in manufacturing processes, or in refrigerant or coolant loops attached to new individual pieces of manufacturing equipment, due to the ban on such uses in the European Union (EU). Class II ODS may still be used as refrigerants in large facility chiller systems not located in the EU but cannot be used in new equipment starting in 2021.</li> <li>• For Hydrofluorocarbons (HFC’s) a complete phase down schedule is intended for refrigerant applications, and only as approved in manufacturing for etch and deposition process uses.</li> </ul> <p>Note: US EPA Website [<a href="#">website</a>]</p> <p>-----</p> <p>UN Stockholm Convention Listed POPs (Persistent Organic Pollutants) Note: UN Stockholm Treaty Website [<a href="#">website</a>]<u>The following</u></p> <p>-----</p>

	<p><u>Glycol Ether use is prohibited at Intel: Requirement based on Industry Voluntary phase-out:</u></p> <p>109-86-4 – ethylene glycol methyl ether  110-49-6 – ethylene glycol monomethyl ether acetate  110-80-5 – 2-ethoxyethanol  111-15-9 – ethylene glycol monoethyl ether acetate  111-96-6 – bis (2-methoxy ethyl) ether</p> <p>-----</p> <p>Asbestos (including the following forms):  12001-28-4 - Asbestos Crocidolite  12001-29-5 - Asbestos Chrysotile  12172-73-5 - Asbestos Amosite  1332-21-4 - Asbestos Ascarite (II) R  77536-66-4 - Asbestos materials Actinolite  77536-67-5 - Asbestos Anthophyllite  17068-78-9 - Asbestos Anthophyllite</p> <p>-----</p> <p><u>PFX</u>  Long Chain Perfluorinated materials (PFOS, PFOA, PFNA, etc. – C8+)  Short Chain Perfluorinated materials in non-lithography applications, except by exception  Note: OECD PFAS database can be found at: [OECD <a href="#">Website</a>] [CompTox Chemicals Dashboard from EPA site <a href="#">Website</a>]</p> <p>-----</p> <p><u>n-Methyl Pyrrolidone (NMP), 872-50-4</u></p> <ul style="list-style-type: none"> <li>• New use of NMP-based chemistry in High Volume Manufacturing (HVM) applications are NOT allowed at concentrations <math>\geq 0.1\%</math> unless with an approved exception</li> </ul> <p>Note: New use is defined as a use for an application that hasn't been previously utilized; has a different purpose and/or application</p>
<p><b><u>Discouraged</u></b></p>	<p>The use of materials with the following classifications are Strongly Discouraged from Use at Intel:  <u>United Nations Global Harmonization Standard (GHS) toxicological classifications:</u>  GHS classified Carcinogens – Category 1 &amp; 2  GHS classified Reproductive Toxicant – Category 1 &amp; 2  GHS classified Acute Toxicity – Category 1 &amp; 2  GHS classified Mutagens – Category 1 &amp; 2</p>

	<p>GHS classified Acute and Chronic Aquatic Toxicity – Category 1&amp;2  Note – Untested mixtures containing substances above GHS cutoff / threshold</p> <p><u>REACH Regulation (EC) No 1907/2006:</u>  Candidate List of Substances of Very High Concern for Authorisation [<a href="#">Link</a>]  Annex XIV (Authorisation) [<a href="#">Link</a>]  Annex XVII (Restriction) [<a href="#">Link</a>] or must meet restriction requirements</p> <p>Responsible Business Alliance (RBA) Industry Focused Process Chemical list  Clean Electronics Production Network (CEPN) Priority Chemical list</p>
<b><u>Articles; Non-Chemical Materials</u></b>	<p>Please refer to Intel’s Product Content Specification #18-1201 for more specific details on regulated substances on <a href="http://Supplier.intel.com">Supplier.intel.com</a>  <a href="#">Environmental Product Content Specification (intel.com)</a>  Article suppliers must meet global substance in Article requirements</p>
<b><u>Definitions</u></b>	<p><b>Article</b> – A manufactured item other than a fluid or particle (e.g. silicon wafer, process tools, etc.): (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.</p> <p><b>Chemical</b> – Any element, chemical compound, biological material, nanoparticle, or mixture of elements and/or compounds (e.g. photoresists, solvents, metal sputter targets, adsorbents, epoxies, fluxes, solder balls, etc.).</p>