

Understanding Exemptions

The ARRIS Material Disclosure Specification provides exemptions for all Controlled substances, and are categorized by RoHS Substance, ARRIS General and ARRIS Surface Substance. As part of the new process, exemptions are populated by the Supplier. Up to three exemptions can be provided for a Substance

- **RoHS** - applied whenever a RoHS substance category exceeds the RoHS threshold
- **ARRIS General** - applied whenever a ARRIS substance category exceeds the ARRIS threshold. There are overlapping substance categories between the RoHS and ARRIS General categories, and the ARRIS threshold is always lower
- **ARRIS Surface** - applied whenever a ARRIS Surface substance category exceeds the ARRIS Surface threshold .Surface materials are those which are intended to come into direct and prolonged contact with the skin

There are several different exemptions in the ARRIS IPC Creator, all of which are referenced in the ARRIS Material Disclosure Specification. There include both EU RoHS Exemptions and ARRIS Specific Exemptions, which are based on different reasoning:

- Time until implementation
- No better alternative is available in the industry
- Some for specific businesses or use
- Hazardous substance is not damaging in this certain use

Exemptions must be provided if a compliance threshold is exceeded. This may also require multiple exemptions to be applied to one substance category has overlapping restrictions in different specifications (ex: RoHS and ARRIS General)

Please refer to ARRIS Exemptions listed in the ARRIS Material Disclosure Specification and the guidance document posted within the training material located at

<http://phx.corporate-ir.net/phoenix.zhtml?c=87823&p=irol-govresponsibility>

Below we will discuss the most frequently applied exemptions:

Exemptions applied to Lead in Metal Alloys

- Lead is often used as an alloying element to obtain specific properties of a metal alloy
- This exemption applies to the use of lead in:
 - steel up to 0.35% by weight,
 - aluminum up to 0.4% by weight
 - copper alloys up to 4% by weight
- In the context of this exemption, 'percentage by weight' has to be interpreted as 'the percentage of lead per homogeneous material per discrete part'
- For example, if the steel housing of a computer consists of two separate parts, each part is considered separately, and can contain up to 0.35% lead by weight for their respective homogeneous materials

These are examples of appropriate exemptions to apply:

- Lead in steel up to 0.35% by weight
 - RoHS exemption - 6(a) – "Lead as an alloying element in steel containing up to 0.35% lead by weight"
 - ARRIS General - 518 – "Lead NOT in cable jackets or packaging; covered by RoHS"
 - ARRIS Surface - 538 – "Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)"
- Aluminum up to 0.4% by weight
 - RoHS exemption - 6(b) – "Lead as an alloying element in aluminum containing up to 0.4% lead by weight"
 - ARRIS General - 518 – "Lead NOT in cable jackets or packaging; covered by RoHS"
 - ARRIS Surface - 538 – "Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)"
- Copper alloys up to 4% by weight
 - RoHS exemption - 6(c) – "Lead as an alloying element in copper containing up to 4% lead by weight"
 - ARRIS General - 518 – "Lead NOT in cable jackets or packaging; covered by RoHS"
 - ARRIS Surface - 538 – "Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)"

Exemptions applied to Lead in electronic components (resistors and capacitors)

- Ceramic and glass materials are used in a variety of electronic devices including capacitors and resistors.
- Some of these ceramic and glass materials contain lead, for example lead zirconate titanate and lead magnesium niobate and lead oxide.
- The specific chemical composition and manufacturing process of these materials determine their electrical parameters, such as dielectric constant and the dissipation that is essential for the functioning of the component in which they are used.
- Hence, lead used in the ceramic parts of electronic components in electrical and electronic equipment is exempt from these RoHS.
- In the context of this exemption, it is critical to note that lead must be part of a homogeneous ceramic substance within an electronic part and NOT part of the metal matrix which serves as a termination to the part

These are examples of appropriate exemptions to apply:

- Lead in the glass layer of a resistor
 - RoHS exemption - 7(c)-I – “Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound”
 - ARRIS General - 518 – “Lead NOT in cable jackets or packaging; covered by RoHS”
 - ARRIS Surface - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”
- Lead in the ceramic dielectric of a high voltage capacitor
 - RoHS exemption - 7(c)-II – “Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher”
 - ARRIS General - 518 – “Lead NOT in cable jackets or packaging; covered by RoHS”
 - ARRIS Surface - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”
- Lead in the ceramic dielectric of a low voltage capacitor
 - RoHS exemption - 7(c)-III – “Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC”
 - ARRIS General - 518 – “Lead NOT in cable jackets or packaging; covered by RoHS”

- ARRIS Surface - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”



Exemption 7(c)-III expired. Parts using this exemption will not be approved for RoHS compliant products.

Exemptions applied to lead in solder

- Lead is used in a variety of solders to produce alloys with specific melting temperatures and strength.
- As there are no alternatives to lead in key applications of low and high melting temperature solders, they are exempted by RoHS in specific solder formulations and applications.
- The presence of Lead must be confirmed to be part of a solder alloy and the weight % of the Lead must be understood to apply an appropriate exemption. (e.g. Pb 88%, Sn 12; or Pb 86% Sn 10%, Sb 4%)

These are examples of appropriate exemptions to apply:

- Lead in Solder (less than 85%)
 - RoHS exemption - 7(b) – “Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications”
 - ARRIS General - 518 – “Lead NOT in cable jackets or packaging; covered by RoHS”
 - ARRIS Surface - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”
- Lead in Solder (greater than 85%)
 - RoHS exemption – 7(a) – “Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85% by weight or more lead)”
 - ARRIS General - 518 – “Lead NOT in cable jackets or packaging; covered by RoHS”
 - ARRIS Surface - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”

ARRIS only Exemptions

- As previously discussed, some substances are only controlled by ARRIS , or ARRIS controls them at a lower threshold. For these substances, we have ARRIS specific exemptions. Some examples are:
 - Nickel – that does not have prolonged contact with skin
 - ARRIS General Exemption - 501 – “Part contains Nickel, but will not have prolonged contact with skin”
 - Lead (> 70 PPM, < 1000 PPM) – where above ARRIS threshold, but below the RoHS threshold
 - ARRIS General Exemption - 518 – “Lead NOT in cable jackets or packaging; covered by RoHS”
 - ARRIS Surface Exemption - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”
 - Lead in a cable jacket (< 300 PPM)
 - ARRIS General Exemption - 513 – “Lead in Cable Jackets only, up to 300 ppm per California Prop 65”
 - ARRIS Surface Exemption - 538 – “Part contains Lead but will not have prolonged contact with skin (i.e. surface mount parts)”