Objective:
To identify chemical agents that are reproductive toxicants, learn the routes into the body, and find out how to protect yourself when handling them.

Area of application: laboratories and workshops in which chemical agents that are reproductive toxicants are handled.

What is a chemical agent that is toxic to reproduction?
It is a substance or mixture of substances that causes birth defects.

Classifications:

**Category 1A**
Substances that are known to be reproductive toxicants for humans, based on the existence of human evidence.

**Category 1B**
Substances that are known to be reproductive toxicants for humans, based on the existence of animal evidence.

**Category 2**
Substances that are suspected of being toxic to human reproduction.
Consult point 2 on the identification of hazards in the corresponding safety data sheet (SDS), which provides the information required to identify a chemical agent that is a reproductive toxicant.

<table>
<thead>
<tr>
<th>Category</th>
<th>Pictogram</th>
<th>Signal word</th>
<th>Indications of hazards</th>
<th>H-phase</th>
<th>R*-phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A or 1B</td>
<td>Danger</td>
<td></td>
<td>May damage fertility or the fetus</td>
<td>H360 H360F H360D H360Fd H360Df</td>
<td>R60 R61 R60/61 R60/63 R61/62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May damage fertility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May damage the fetus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May damage fertility. May damage the fetus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May damage fertility. Suspected of damaging the fetus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May damage the fetus. Suspected of damaging fertility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Warning</td>
<td></td>
<td>Suspected of damaging fertility or the fetus</td>
<td>H361 H361f H361d H361fd</td>
<td>R62 R63 R62/63</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Suspected of damaging fertility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Suspected of damaging the fetus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Suspected of damaging fertility. Suspected of damaging the fetus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional category for effects on or via lactation

No pictogram

No signal word

May cause harm to breast-fed children

H362

R64

* Specific risks attributed to dangerous substances and preparations, according to RD363/1995 and RD255/2003
RESPIRATORY ROUTE

The route into the body for any chemical agent that is in the air in the form of a gas, vapour, fumes, powder, fibre, etc. that is taken into the lungs when the individual breathes in – inhales the surrounding air through the nose or mouth. Depending on the volume and shape of the particles, they will reach different distances along their passage through the respiratory system.

DIGESTIVE ROUTE

The route for chemical agents that involves their ingestion, generally due to an involuntary action that is almost always associated with unhygienic practices and habits.

DERMAL ROUTE

The route for chemical agents that, when they come into contact with the skin, can cross it and reach the blood. The blood then distributes the chemicals around the body. Contact with eyes (irritation, etc.) is part of this route.

PARENTERAL ROUTE

The route for chemical agents through injuries to the skin or direct inoculation with the toxin.
If the chemical agent that is a reproductive toxicant is replaced by another agent, the risk of exposure is eliminated.

Generally, chemical agents that are reproductive toxicants do not have a universal replacement, but can be substituted in certain applications by other chemical agents that are not toxic to reproduction, or by alternative processes.

<table>
<thead>
<tr>
<th>Example Chemical agent that is a REPRODUCTIVE TOXICANT</th>
<th>Category</th>
<th>Applications</th>
<th>Alternative/Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead acetate</td>
<td>Carc. 2 Repr. 1A</td>
<td>Chemical analysis</td>
<td>Aluminium sulfate</td>
</tr>
<tr>
<td>Formamide</td>
<td>Repr. 1B</td>
<td>Chemical analysis</td>
<td>Cyclopentanone</td>
</tr>
<tr>
<td>Ethylene glycol acetate</td>
<td>Repr. 1B</td>
<td>Chemical analysis</td>
<td>Propylene glycol ethers</td>
</tr>
</tbody>
</table>

For more information on potential substitutes, consult the INFOCARQUIM (INFOrmació sobre CARcinògens QUÍMics) database on the INSHT website: [http://infocarquim.insht.es:86/Forms/About.aspx](http://infocarquim.insht.es:86/Forms/About.aspx)
If the chemical agent that is a reproductive toxicant cannot be replaced, implement the following preventive measures:

- **Obtain the right information** (indications of danger, preventive measures, etc.) by reading the chemical agent’s safety data sheet.

- **Work with air-tight equipment** so that you are not exposed to a chemical agent that is a reproductive toxicant, by preventing small accidental leaks at critical points in the system (valves, joints, etc.).

- **Limit the amounts and concentrations** of the chemical agent that is a reproductive toxicant to minimise exposure.

- **Limit the number of workers** who handle chemical agents that are reproductive toxicants and reduce the exposure time.

- **Handle** chemical agents that are reproductive toxicants **within a fume cabinet** to prevent inhalation of vapour.

- **Use at least the following personal protection equipment:**
  - Nitrile and/or neoprene chemical protection gloves.
  - Safety goggles (wraparound) to avoid contact with the chemical agent through the skin and eyes.

- **Store** chemical agents that are reproductive toxicants in a specific cabinet for chemical storage, **with access restricted** to authorised personnel.

For further information on chemical agents, consult the chemical products section of the prevention website: [http://www.upc.edu/prevencio/ca/seguretat-higiene/productes-quimics](http://www.upc.edu/prevencio/ca/seguretat-higiene/productes-quimics)