Risk Assessment for Packaging (Food Contact) Materials

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PACKAGING MATERIALS

- Prevent food from contamination
- Preserve safety and quality of food
## PACKAGING MATERIALS

<table>
<thead>
<tr>
<th>Plastics</th>
<th>Paper &amp; board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>Metals &amp; alloys</td>
</tr>
<tr>
<td>Ceramics</td>
<td>Paraffin, waxes</td>
</tr>
<tr>
<td>Wood</td>
<td>Varnishes, inks etc.......</td>
</tr>
</tbody>
</table>

Food contact material needs
Careful evaluation
PACKAGING MATERIALS

Migration of chemicals from food contact materials:

- Impacts on food quality
- Impact on food safety
PACKAGING MATERIALS

Direct food contact materials:
- Cans, bottles, plastics, caps etc.
  - Should have food contact certification
  - Migration testing data for wet food

Indirect food contact materials:
- Boards, varnish, inks etc.
  - Should have regulatory compliance
PACKAGING MATERIALS

Foods packaging regulations:

- Regulations available for Direct and Indirect contact materials
  - Indian Standards
  - FDA 21CFR
  - European Directive 2002/72/EC
  - BfR
  - Australian Standard AS2070-1999
  - MERCOSUR Regulations
  - FCC
  - Japanese Food and Sanitation Act relating to food contact materials
Migration:

- Substances from food contact materials must not migrate in quantities which could endanger human health.

- Regulations / guidance documents are available for migration testing of plastics and food contact materials.
PACKAGING MATERIALS

- Thorough toxicological evaluation of both food ingredients and packaging material is needed for determination of safety of food products.
- In case of information gap, toxicological testing of packaging material is necessary for safety assessment.
- Additionally, processing conditions, handling and storage etc. also affect packaging safety.
EXAMPLE – WATER PURIFIERS
CASE STUDY – A WATER PURIFIER

General description:

The purifier mainly consists of a plastic body and disinfectant

- Plastic body made of high density Polyethylene terephthalate (PET) and Polycarbonate
- Disinfectant - chlorine (4ppm)
RISK ASSESSMENT

Safety support for the components

- Polyethylene terephthalate (PET) – FDA 21CFR 177.1630
- Polycarbonate – FDA 21CFR 177.1580
- WHO guidelines allow up to 5ppm chlorine in drinking water
- Migration testing of all the plastic components carried out with chlorinated water under exaggerated conditions (40°C for 30 days, leaching within limits i.e. <60ppm)
RISK ASSESSMENT

- All materials of construction are suitable for drinking water contact.
- Migration tests of the components were carried out with chlorine water to simulate the chlorine environment – leaching within acceptable limits.

The device is safe for use as a water purification unit