






Contaminants	Challenges for closed loop glass recycling	
PHASE IN THE CLOSED LOOP RECYCLING PROCESS	SORTING	REMELTING IN A CONTAINER GLASS FURNACE
<b>Organics</b> 	<ul style="list-style-type: none"> <li>Organics can cause damage to the sorting equipment and may represent a fire hazard through the production of combustible dust with dryers – whereas glass dust is non-combustible.</li> <li>Organic contaminants represent a cost as they are either sent to land-fill or energy recovery.</li> </ul>	<ul style="list-style-type: none"> <li>Plastic pieces can remain intermingled with cullet that is fed into a melting furnace.</li> <li>Creates bubbles and foam, introducing gas bubbles into the melt that is removed by adding a fining agent such as sodium sulphate. Vaporizing plastic and using fining agents produces air emissions.</li> <li>Too many organics may alter colour stability.</li> </ul>
<b>Metals</b> 	<ul style="list-style-type: none"> <li>Metal parts can be difficult to eject due to their shape</li> <li>Metal parts can be difficult to eject when combined with ceramic swing-top closures.</li> <li>Safety could be jeopardized by certain non-magnetic closure system (see example)</li> </ul>	<ul style="list-style-type: none"> <li>It is crucial to remove all traces of metals as these materials are totally banned from the production of new packaging: metals have different melting points to glass, are not miscible with glass and damage the refractories of the glass furnaces.</li> <li>Metal particles generate inclusions in new glass packaging, causing a weak/breaking point during the cooling process of the packaging production, during the transport of empty packaging, during their filling, or during storage and use. This is a particular problem for carbonated beverages.</li> <li>Steel can cause colour variation to the glass.</li> </ul>
<b>Ceramics, Stones, Porcelain</b> 	<ul style="list-style-type: none"> <li>Thin porcelain has too much light transmission and gets confused with glass</li> <li>Some parts can be difficult to eject due to their shape</li> <li>These fractions get broken down into small pieces and become part of the fine fraction, which is not always accepted by glass makers.</li> </ul>	<ul style="list-style-type: none"> <li>Ceramics, Stones and Porcelain contaminants have higher melting point than glass</li> <li>They cause unacceptable defects and inclusions in the final glass packaging products</li> <li>Can create damage to the scissors cutting the molten glass and create worker safety issues</li> </ul>
<b>Lead-containing glass</b> 	<ul style="list-style-type: none"> <li>These fractions get broken down into small pieces that are difficult to sort and become part of the fine fraction, which is not always accepted by glass makers.</li> </ul>	<ul style="list-style-type: none"> <li>Lead-containing glass is a contaminant for the production of glass packaging containers.</li> </ul>
<b>Glass with special composition</b> 	<ul style="list-style-type: none"> <li>These fractions get broken down into small pieces that are difficult to sort and become part of the fine fraction, which is not always accepted by glass makers.</li> </ul>	<ul style="list-style-type: none"> <li>Glass packaging is made of soda-lime glass. Other glass compositions (e.g. borosilicate glass) have higher melting point than glass, can cause unacceptable defects in the final glass packaging products</li> </ul>