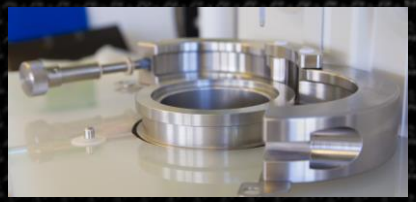
ExoVa

Case Study #2

Leachables may impact drug efficacy and potency.

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Biologics can be produced from certain mammalian cell lines.

Several pharmaceutical companies noticed a problem with the growth of certain cell lines that were manufactured in bioprocessing bags.

Bioprocessing bags are manufactured from various polymer films that include low density polyethylene (LDPE).

Stabilizers known as antioxidants are used in polyolefin polymers (such as polyethylene and polypropylene) to prevent them from degrading during manufacturing and long-term usage.

A commonly used secondary antioxidant, trade name Irgafos 168, is used to scavenge peroxides in polymers before they can form the free radicals that promote polymer degradation.

In the presence of certain cell lines and accompanying growth media, an unexpected degradation of the Irgafos 168 formed a compound referred to as bDtBPP.

The concentration of the bDtBPP was very low (ppb range) and was not considered to be a safety concern for the patients using these biologics.

However, the leaching of the Irgafos 168 from the LDPE film used in the construction of the bioprocessing bags and subsequent formation of bDtBPP inhibited the growth of these cell lines.

Lessons learned:

- Leachables can impact the quality of biologics – especially proteins and peptides
- Even at low concentrations determined to be non-toxic to patients, leachables should be evaluated for interactions with the drug product.