



Overall Karstedt catalyst has a superior safety profile in terms of risks to man and the environment versus the alternative of Chloroplatinic acid (CPA):

- CPA (sometimes known as Speier's catalyst) is acknowledged to be a potent human allergen (R42): may cause sensitization by inhalation / H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled).
- It can cause occupational asthma in humans under circumstances of over-exposure, particularly when present in an unincorporated state, e.g. as a dust or mist in air. This property is due to its intrinsic reactivity with body proteins because of the presence of chloride which is centrally coordinated to a Pt atom.
- If released into the environment in un-reacted form it is also hazardous to ecosystems. Therefore any environmental releases must be carefully controlled.
- The workplace exposure limit applicable to CPA may be subject to future revision toward a more stringent standard. This has implications in terms of a need for more demanding workplace risk management measures (e.g. more comprehensive and costly worker exposure controls and other administrative controls).

Karstedt catalyst is widely acknowledged to be less toxic than CPA.

- It does not have chloride coordinated to a Pt atom, and comprises Pt in its zero oxidation state. As a substance, it has not been associated with occupational asthma cases.
- Karstedt catalyst has a low order of acute toxicity compared to CPA. It is a slight to moderate irritant on contact, and was found to be non-mutagenic (in the Ames test).
- Based on properties assessment and also modelling of its environmental hazard, Karstedt Catalyst is considered to be significantly less eco-toxic than CPA.



- As an indicator of its safety profile, Karstedt Catalyst is approved for use in elastomers for medical applications. When incorporated as a catalyst, no evidence of allergic sensitisation or other significant toxic effects have been detected in animal toxicology studies [ref. UK MHRA evaluation and FDA assessment]. It cannot be completely excluded that a small fraction of the Karstedt catalyst incorporated in such systems might change oxidative State over time, but this has been independently evaluated and is not considered to have any appreciable consequences in terms of safety profile.

References

www.mhra.gov.uk/home/groups/dts-bi/documents/websiteresources/con2032462.pdf

www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/ImplantsandProsthetics/BreastImplants/UCM064040

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