

## Platinum Salt Sensitivity (PSS) incidence over time

Cases of allergy in workers handling chloroplatinates were first reported over a century ago (Karasek et al, 1911). Health surveys from the 1940s and 1950s of workers exposed to chloroplatinates reported a high prevalence of symptomatic allergy consistent with platinum sensitisation of at least more than 50% (Hunter et al 1945; Roberts 1951).

Over time, the incidence and prevalence of PSS have progressively decreased. This is best illustrated by comparison of studies published in the scientific literature in which the same incidence metric has been used. The figure below shows the incidence rate of PSS measured as cases per 100 person-years across seven studies published between 1989 and 2020.



PSS incidence over time as reported in published studies

The study published by Heederik et al in 2016, reported an incidence rate of 2.4 cases per 100 person-years in workers studied over an 11-year period from 2000-2010. This study was later extended with additional data up to 2015 and an incidence of 1.5 cases per 100 person-years was reported (Smit et al, 2020); however, IPA considers this unreliable as after the study was completed it became apparent that a number of cases had been erroneously excluded from the extended cohort. Nonetheless, more comprehensive data collected by IPA from its member companies across a larger number of facilities show the number of cases of PSS and the incidence rate (calculated as number of cases per year per 100 employees under medical surveillance for PSS) have continued this downward trend since 2010.

The data (incidence during 2010-2022 and absolute number of cases up to September 2024) show a notably lower incidence during the initial development of the covid-19 pandemic, with a subsequent



partial rebound. Absolute case numbers in 2023 appear increased, but a number of those were diagnosed in January and hence it is likely they actually became sensitised in 2022 when a much lower number of cases were reported. The case numbers up to 10<sup>th</sup> September 2024 continue to evidence an overall downward trend in cases.



## PSS incidence during 2010-2022 at IPA member companies





## References

Calverley AE, Rees D, Dowdeswell RJ, Linnett PJ, Kielkowski D (1995) Platinum salt sensitivity in refinery workers: incidence and effects of smoking and exposure. *Occup Environ Med*, **52**(10), 661-666.

Heederik D, Jacobs J, Samadi S, van Rooy F, Portengen L, Houba R (2016) Exposure-response analyses for platinum salt-exposed workers and sensitization: A retrospective cohort study among newly exposed workers using routinely collected surveillance data. *J Allergy Clin Immunol*, **137**(3), 922-929.

Hunter D, Milton R, Perry KMA (1945) Asthma caused by the complex salts of platinum. Br J Ind Med, 2, 92-98.

Linnett PJ and Hughes EG (1999) 20 years of medical surveillance on exposure to allergenic and non-allergenic platinum compounds: the importance of chemical speciation. *Occup. Env. Med.*, **56**, 191-196.

Merget R, Kulzer R, Dierkes-Globisch A, Breitstadt R, Gebler A, Kniffka A, Artelt S, Koenig HP, Alt F, Vormberg R, Baur X, Schultze-Werninghaus G (2000) Exposure-effect relationship of platinum salt allergy in a catalyst production plant: conclusions from a 5-year prospective cohort study. *J Allergy Clin Immunol*, **105**(2), 364-370.

Niezborala M and Garnier R (1996) Allergy to complex platinum salts: A historical prospective cohort study. *Occup Environ Med*, **53**(4), 252-257.

Roberts, AE (1951) Platinosis: a five-year study of the effects of soluble platinum salts on employees in a platinum laboratory and refinery. *Arch Ind Hyg Occ Med*, **4**, 549-559.

Smit LAM, Jacobs J, Portengen L, Da Silva J, Heederik D, van Rooy F, Houba R, (2020) Exposure-response relationships for platinum salt sensitization in platinum refinery workers: a 17-year retrospective study. *European Respiratory Journal*, **56**, 3849.

Venables KM, Dally MB, Nunn AJ, Stevens JF, Stephens R, Farrer N, Hunter JV, Stewart M, Hughes EG, Newman Taylor AJ (1989) Smoking and occupational allergy in workers in a platinum refinery. *Br Med J*, **299**, 939-942.