

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: Palladium file (CAS # 7440-05-3)

FROM: Gary Butterfield

DATE: July 29, 2005

SUBJECT: Screening level for Palladium

Palladium is a Lanthanide series metal. Palladium has a molecular weight of 106.4 g/mol.

The following references or databases were searched to identify data to determine the screening level: U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS), National Institute for Occupational Safety and Health (NIOSH) Registry for Toxic Effects of Chemical Substances (RTECS), American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), Michigan Department of Environmental Quality (DEQ) library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1968 — July 2005), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

The CAS and NLM online literature searches were conducted on July 14, 2005. There are a fair number of toxicity studies that have been conducted on palladium compounds and salts; however, there is not much toxicity data available on the metal form itself. Among the palladium salts and compounds, it appears that the more water soluble forms have the greatest toxic effects because they're more available to be absorbed and distributed into the biologic realm.

The permit request was for development of a screening level for metallic palladium. It is considered inappropriate to use the available palladium salt and compound toxicity data for setting the ITSL due to the metallic form being nearly insoluble compared to the salts and compound forms. In addition, it is also considered inappropriate to use oral data for the purpose of setting an inhalation screening level. This is due to the likely event that there is inhalation route of exposure effects that can not be accounted for when using the oral exposure route.

Due to a lack of inhalation exposure toxicity information on metallic palladium being available the ITSL is being set at 0.1 µg/m³ with annual averaging under R232(1)(i).

GB:LH