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HEALTH BASED VALUES FOR PAH'S IN COKE BY-PRODUCT WASTES

OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

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MEMORANDUM

SUBJECT: Current Status of Health-Based Values for PAH's in Coke By-Product Wastes

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Listed below are the PAH compounds commonly detected in coke by-product wastes and their health-based numbers derived from carcinogenic or non-carcinogenic endpoints. The RfD's indicate non-carcinogenic health numbers verified by the reference dose workgroup. The RSD's (risk specific doses) indicate carcinogenic numbers derived from CRAVE, the cancer risk assessment verification workgroup, or from CAG, the cancer assessment group. The risk level for the RSD is 1×10^{-6} .

Benzo[a]pyrene
-B2 carcinogen; RSD is 8.6×10^{-8} mg/kg/day (CAG profile)

Benzo[a]anthracene
-B2 carcinogen; RSD is 3×10^{-7} mg/kg/day (CAG profile)

Benzo (b) fluoranthene

-B2 carcinogen; no quantitative RSD (CAG profile)

Benzo (k) fluoranthene

-B2 carcinogen; RSD in 1.1×10^{-4} mg/kg/day (1985 NIOSH RTECS)

Benzo [g, h, i] perylene

-This compound was assigned an RSD equal to the RSD for benzo[a]pyrene for the wood preserving listing.

Benzene

-A carcinogen; RSD is 3.4×10^{-5} (CRAVE verified)

-RfD inhalation is 5.7×10^{-3} mg/m³ (under review by RfD workgroup)

Chrysene

-C carcinogen; This compound was assigned an RSD equal to the RSD for benzo[a]pyrene. (CAG profile)

Dibenzo [A, H] anthracene

-B2 carcinogen; RSD is 2.0×10^{-8} mg/kg/day (CAG profile)

Ethylbenzene

-Oral RfD 1×10^{-1} mg/kg/day (RfD workgroup verified)

Indeno (1, 2, 3-cd) pyrene

-C carcinogen; RSD is 5.7×10^{-5} mg/kg/day (Water Quality Criteria Document)

2-Methyl naphthalene

-This compound was assigned an RfD equal to the RSD for Indeno (1,2,3-CD) pyrene for the wood preserving listing.

2-Methyl phenol (o-cresol) (RfD workgroup verified)

-oral RfD 5×10^{-2} mg/kg/day

4-Methyl phenol (p-cresol) (RfD workgroup verified)

-oral RfD 5×10^{-2} mg/kg/day

Naphthalene

-oral RfD 0.4 mg/kg/day (1986 Health and Environmental Effects)

Phenanthrene

-This compound was assigned an RfD equal to the RSD for Indeno (1,2,3-cd) pyrene for the wood preserving listing.

Phenol

-oral RfD 6×10^{-1} mg/kg/day (RfD workgroup verified)

Styrene

-oral RfD 2×10^{-1} mg/kg/day (RfD workgroup verified)

-B2 carcinogen; oral RSD 3.3×10^{-5} mg/kg/day (CRAVE verified)

-Inhalation RSD is 5.0×10^{-5} mg/kg/day

Toluene

-oral RfD 3×10^{-1} mg/kg/day (RfD workgroup verified)

-inhalation RfD 2.0 mg/m³ (RfD workgroup verified)

Xylenes

-oral RfD 2.0 mg/kg/day (RfD workgroup verified)

-inhalation RfD 3.0×10^{-1} mg/m³ (RfD workgroup verified)

The following PAH's are in the process of having RfD values developed.

Acenaphthene

Acenaphthylene

Anthracene

Fluoranthene

Fluorene

2,4-dimethyl phenol

Pyrene