

01 January 2026

To Our Valued Customers,

This letter addresses MOSH (Mineral Oil Saturated Hydrocarbons) and MOAH (Mineral Oil Aromatic Hydrocarbons) content in **Penreco® branded products**.

**Regulatory Compliance:**

- Penreco® white mineral oil and petrolatum products comply with the BLL toolbox process (German Federation of Food Law and Food Science), which references H1 lubricants for incidental food contact.
- Drakeol® mineral oils and USP petrolatum/white petrolatum meet 21 CFR 172.878 and 21 CFR 172.880, respectively, which supersede H1 compliance and allow direct use in foods per FDA regulations.

**Testing and Results:**

Calumet submitted representative materials for third-party MOSH/MOAH analysis using the German National Reference Laboratory method (hexane extraction, HPLC-GC-FID).

- **MOSH Results:**
  - Not detected at 20 g/kg (method detection limit).
  - C16–C25: 50–920 g/kg
  - C16–C35: 350–>980 g/kg
  - C20–C35: Not detected at 10 g/kg to 960 g/kg
- **MOAH Results:**
  - Not detected at 20 g/kg (<C16) or 10 g/kg (C16–C35).

Additionally, representative Drakeol® and USP petrolatum/white petrolatum products were tested for **PAH content per BS EN 16143**, with all analytes **not detected at 10 ppb**. (*Full analyte list available upon request.*)

<b>ANALYTE</b>	<b>CASRN</b>
Naphthalene	91-20-3
Acenaphthylene	208-96-8
Acenaphthene	83-32-9
Fluorene	86-73-7
Phenanthrene	85-01-8
Anthracene	120-12-7
Fluoranthene	206-44-0
Pyrene	129-00-0
Benzo [b] naphtho [2,1-d]	239-35-0
Cyclopenta(c,d)Pyrene, 3,4	25732-74-5
Benz[a] anthracene	56-55-3
Cyclopenta(c,d)Pyrene	27208-37-3
Triphenylene	217-59-4
Chrysene	218-01-9
5 Methylchrysene	3697-24-3
1 Nitropyrene	5522-43-0
Benzo[b] fluoranthene	205-99-2
7,12-Dimethylbenz[a]	57-97-6
Benzo[k] fluoranthene	207-08-9
Benzo[j] fluoranthene	205-82-3
Benzo[e] pyrene	192-97-2
Benzo[a] pyrene	50-32-8
3-Methylcholanthrene	56-49-5
Dibenz[a,j]acridine	224-42-0
Dibenz[a,h]acridine	226-36-8
Indeno[1,2,3-cd] pyrene	193-39-5
Dibenz[a,h]anthracene	53-70-3
Benzo[g,h,i]perylene	191-24-2
7H Dibenzo[c,g]carbazole	194-59-2
Dibenzo[a,e] fluoroanthene	2997-45-7
Dibenzo[a,e] pyrene	192-65-4
Benzo[rst]pentaphene *	189-55-9
Dibenzo[a,l] pyrene	191-30-0
Dibenzo[a,h] pyrene	189-64-0
Benzo[b]thiophene	95-15-8
Dibenzothiophene	132-65-0
Carbazole	86-74-8
Benzo[a]acridine	225-11-6
Benzo[b]naphtho[2,3-	243-46-9
Benzo[c]acridine	225-51-4
Dibenz[c,h]acridine	224-53-3
7H-Benz[c]fluorine	205-12-9
Dibenzo(a,i)pyrene *	189-55-9

\* Dibenzo(a,i)pyrene (syn: Benzo[rst]pentaphene (CAS 189-55-9))



1060 N. Capitol Ave, Suite 6-401 Indianapolis, IN 46204  
Phone: 317-328-5660 Fax: 317-328-5668 Sales: 1-800-437-3188 www.calumet.com

Most recently, the Concawe Mineral Hydrocarbons Task Force Special MOCRINIS (STF-33) issued an extensive report regarding the uses of highly refined base oil feedstocks. Excerpting from the 23 October 2017 Concawe publication, "Mineral Oils are Safe for Human Health?"

[https://www.concawe.eu/wp-content/uploads/2017/10/DEF\\_C\\_MM\\_digital.pdf](https://www.concawe.eu/wp-content/uploads/2017/10/DEF_C_MM_digital.pdf)

**Scientific Context:**

- **MOSH:** *Chromatographic measure of alkanes. Concerns about liver accumulation are based on animal studies (Fischer 344 rat), not observed in other species or humans. Decades of safe use confirm no adverse human effects.*
- **MOAH:** *Indicator of unrefined petroleum fractions. Refining processes remove potentially carcinogenic PACs (3–7 ring structures). Remaining highly alkylated aromatics (1–2 rings) are considered safe.*

**Conclusion:**

Concerns over MOSH and MOAH in **USP/FDA-credentialed hydrocarbon materials** are unwarranted for Penreco® Drakeol® and USP petrolatum/white petrolatum products. These materials meet all **FDA and USP/NF requirements** for safe, intentional use in foods, pharmaceuticals, and personal care products.

For further questions, please contact Calumet's Product Support Team at **technical@clmt.com**.

Best regards,

Lynn Massad  
Technical Market Development Manager