

A.1 Definition of TPH—Don't Let the Name Fool You

1. The acronym “TPH” stands for “total petroleum hydrocarbons” and can be as surprising as a box of chocolates (Figure A1-1). The laboratory analyses might not be total, might not be entirely petroleum, and might not be entirely hydrocarbons, so careful examination of the meaning of the results is important.
 - Petroleum hydrocarbons include crude oils and refined products and may consist of hundreds to thousands of individual compounds with wide-ranging physical and chemical properties.
 - This complex mixture may be referred to by a number of different names: *mineral oil, hydrocarbon oil, oil and grease, volatile hydrocarbons, gasoline range organics, diesel range organics, motor oil range organics, volatile range compounds, purgeable hydrocarbons, extractable hydrocarbons, etc.*
 - TPH data may be used for delineation of bulk oil in the environment, product identification, forensic evaluation of the potential leak source or sources, estimation of risk or hazard to people and the environment, selection of remedial options, and/or compliance monitoring.



**TPH is like
a box of
chocolates
-you never know
what you're
gonna get.**

Figure A1-1. TPH and chocolates

2. Ideally TPH should quantify the total combined concentration of all the petroleum-derived hydrocarbons in an environmental media sample, but in reality it may not be **T**otal, may not be **P**etroleum, and may not be just **H**ydrocarbons.
3. TPH results depend on the analytical method:
 - All petroleum constituents in an environmental sample are not captured.
 - Nonpetroleum hydrocarbons are included (e.g., natural plant and animal organics).
 - Nonhydrocarbons are included (e.g., halogenated solvents, PCBs).
4. There is no one best method for measuring petroleum contamination, and in practice there are a variety of analytical methods and no analysis method can selectively measure:
 - *only* petroleum-derived hydrocarbons.
 - *all* of the petroleum-derived hydrocarbons in a sample.
5. TPH analysis results are semiquantitative and may vary for the same sample analyzed:
 - by different TPH methods
 - with the same method twice
6. The same TPH concentration may represent very different compositions and very different potential risks or hazards to human health and the environment
 - at two sites
 - at the same site in different media (waste, soil, sediment, water, air)

A.1 Definition of TPH—Don't Let the Name Fool You *continued*

7. Definitions for TPH vary for different regulatory jurisdictions and between analytical laboratories.
- There are no federal or EPA analytical methods developed specifically for TPH.
 - TPH has typically been regulated under state programs.
 - It is necessary to understand the analytical method used to interpret the TPH results obtained for a given sample.
 - See the TPH Analytical Methods Fact Sheet for more information.



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