C1-C4 Halogenated Hydrocarbon/Halocarbons Not Otherwise Listed (NOL) Category

APRIL 4, 2019

TUR PLANNER CONTINUING EDUCATION CONFERENCE

C1-C4 NOL

- What are these chemicals?
- How are they used?
- Do I have a new reporting obligation?
- Where can I get assistance if I want it?

Definition of C1-C4 NOL

Chemical compounds with 4 or fewer carbons, at least one halogen, and only hydrogen as the other constituent, that are not already individually listed on the TURA chemical list. This includes fully halogenated chemicals that contain no hydrogen.

Explanation of Chemical Terms

Halogens

- Any combination of the halogens Fl, Cl, Br, I

Hydrocarbons

- Simple unbranched alkanes
- Branched alkanes
- Cyclic alkanes – single carbon bond
- Alkenes – double C bonds (olefins)

Halocarbons

- All hydrogen atoms on the hydrocarbon compound is replaced by halogens

Simple Unbranched Halogenated Compounds

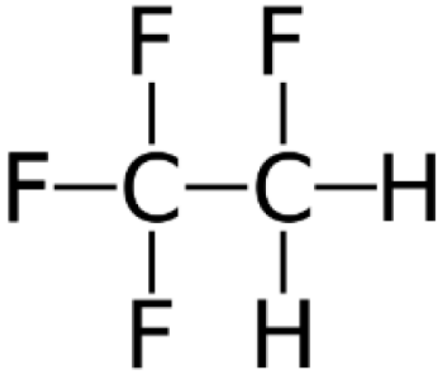
Examples of unbranched alkanes (Single carbon bonds)

C1: methane

C2: ethane

C3: propane

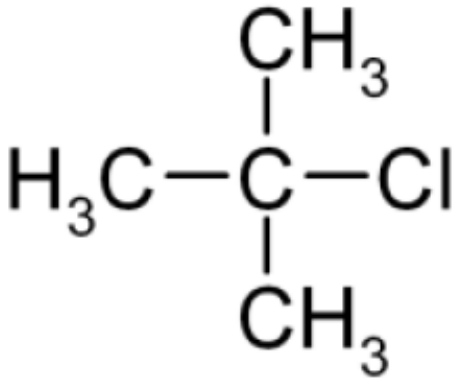
C4: butane



1,1,1,2-Tetrafluoroethane (R-134a)

Branched Alkanes

Adds methyl or ethyl groups to alkane structure



2-chloro-2-methyl propane

Cyclic Alkanes

(Single carbon bonds)

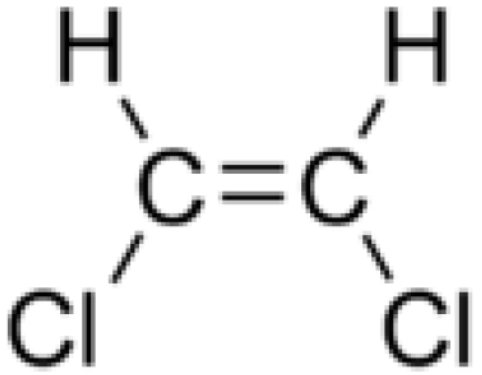
- C3: Cyclopropane
- C4: Cyclobutane

bromocyclobutane

Alkenes

(Double C bonds)

- C2: Ethylene
- C3: Propylene (one double bond, 1 single bond)
- C4: Butene or butylenes (one double bond, 2 single bonds)
- C4: Butadiene (2 double bonds, 1 single bond)



cis-1,2-dichloroethylene

Common Names & Uses of C1-C4 NOL Chemicals

HFC 134 (1,1,2,2-Tetrafluoroethane) Propellant and blowing agent

HFC 134a; R134a (1,1,1,2-Tetrafluoroethane) High temperature refrigerant, foam blowing agent, extraction solvent and propellant

R-143a (1,1,1-Trifluoroethane) Refrigerant by self or in mixtures & propellant

Freon 23; Genetron 23; HFC-23; & R23 (Trifluoromethane) refrigerant, fire extingishing agent, blowing agent, solvent, fluoropolymers

Alternative Solvents to TCE, perc & nPB can be Effective and Pose Significant Health Hazards

Trans-DCE (1,2-Dichloroethylene)*

- Fluosolv™ CX
- Vertrel™ SDG
- Opteon™ Sion

*Immune system toxicant and neurotoxin; CNS depression, & chronic exposure can cause liver, circulatory, immune system and central nervous system damage.

Trans-DCE 1,2-Dichloroethylene

trans-1,2-Dichloroethylene	CAS 156-60-5	Individually TURA listed
cis-1,2-Dichloroethylene	CAS 156-59-2	Report under C1-C4 NOL
cis- and *trans*-mixture	CAS 540-59-0	Individually TURA listed

When in Doubt Where Do I Find the Answer?

Always refer to the guidance in the appendix of the TURA reporting package. The guidance contains:

- Substantial list of chemicals in the C1 to C4 NOL category
- Identifies chemicals in commerce and their common trade names
- Classifies a chemical as individually listed or reportable or as part of the C1 to C4 category

TURA Reporting for C1-C4 NOL

First chemical use reports due 7/1/2020 for use during reporting year 2019.

Reporting threshold is 10,000 pounds for otherwise use

- Contained in a refrigeration system*
- Blowing agent
- Carrier solvent in a coating operation.

Reporting threshold is 25,000 pounds for manufactured or processed

*Few companies are expected to use this quantity year-to-year

To Identify Safer Alternatives Contact:

THE TOXICS USE REDUCTION INSTITUTE (TURI)

MASSACHUSETTS OFFICE OF TECHNICAL ASSISTANCE AND TECHNOLOGY (OTA)