

The Precursors Database: NOAA's new forensics and response tool

Clandestine labs for producing chemical war agents, explosives, and illegal drugs are a growing threat to the American public. Responding effectively to this threat requires new thinking and new tools. To support first responders and forensics specialists, NOAA's Emergency Response Division (ERD) is proposing to develop a Precursors Database that will answer two critical questions:

1. "What can be made from these chemicals?"
2. "What chemicals are used to make a particular war agent, explosive, or illegal drug?"

First responders and field investigators face a daunting, dangerous task whenever they enter a potential clandestine lab. They must identify the substances present and recognize whether those chemicals could be precursors—ingredients—for making war agents, explosives, or illegal drugs. They must identify the chemical production methods being used in the lab. Entry teams also must recognize and protect themselves from deadly hazards: many precursor chemicals are themselves reactive, explosive, corrosive, flammable, or toxic.

Complicating investigators' work is the fact that a typical lab can contain many different chemicals used in many illegal recipes for drugs or explosives. Even a highly-experienced specialist can't memorize all the possible precursors and processes that could be present in an illegal lab. For example, an estimated 34 chemicals can be used to produce the illegal drug methamphetamine by different processes.

To support responders and forensics investigators, ERD is developing a prototype of the Precursors Database. An early version of the Database is now being reviewed and tested by Federal investigators.

Users of the prototype can get quick answers to two critical questions:

1. "What can be made from these chemicals?" When precursors are found in an illegal lab, investigators can select those chemicals in the Precursors Database to find out what agent(s) (weapon, explosive, or drug) they can be used to make. This information can help investigators identify the substances being manufactured in the lab. The Database contains profiles for 853 precursors and 916 agents, along with information about the precursors and processes used to make each agent. The profiles also alert users to the hazards that may be present, and provide emergency response, first aid, and personal protection recommendations.
2. "What chemicals are used to make this agent?" When there's reason to suspect that a location is an illegal lab for producing a particular agent (weapon, explosive, or drug), investigators can quickly generate a list of precursors for that agent and then check whether those precursors are present at the site. This information helps investigators determine what's being manufactured in the lab.

The research team envisions adding more precursor and agent profiles, information about the monitoring equipment needed to detect each precursor or agent, and linkages to ERD's CAMEO® chemical response system (www.epa.gov/ceppo/cameo) to make it possible to predict potential chemical reactions between the substances found in a lab.

The team also is exploring additional functionality to support advanced forensics work.

Beyond the current project, identifying unknown chemicals and potential weapons is a major challenge for emergency workers. ERD hopes that their work on the Precursors Database will lead to new solutions in this general area.

Found Agents

[Home](#)

Found Collection

<< >>

1 of 3

Worksheet
(Contains 0 items)

[Go to Worksheet](#)

Search

[New Search](#)

[View as List](#)

List View

[List Agents](#)

[List Precursors](#)

Agent Name

CAS Number

Type

Agent is made up with the following precursors. Click on name to view details.

Precursor	CAS Number	Classification
aluminum chloride	7446-70-0	reagent
ammonium bifluoride	1341-49-7	reagent
diethyl phosphite	762-04-9	precursor
dimethyl methylphosphonate	756-79-6	precursor
dimethyl phosphite	868-85-9	precursor
hydrogen fluoride	7664-39-3	reagent
isopropanol	67-63-0	reagent
isopropyl ether	108-20-3	reagent

General Description
Reactivity
Chemical Compatibility
First Response
Alt. Methods of Production
Agent Reference
Agent Report
Synonyms

General Description

A colorless, odorless liquid. Almost no odor in pure state. Used as a quick-acting military chemical nerve agent. Chemical warfare agent.

CRIMINAL/TERRORIST USE OF CHEMICAL/BIOLOGICAL AGENTS

The following is intended to supply information to first responders for use in making a preliminary assessment of a situation that they suspect involves criminal/terrorist use of chemical and/or biological (CB) agents. To aid in the assessment, a list of observable indicators of the use and/or presence of a CB agent is provided in the following paragraphs.

Precursors used to make sarin, a chemical war agent.

