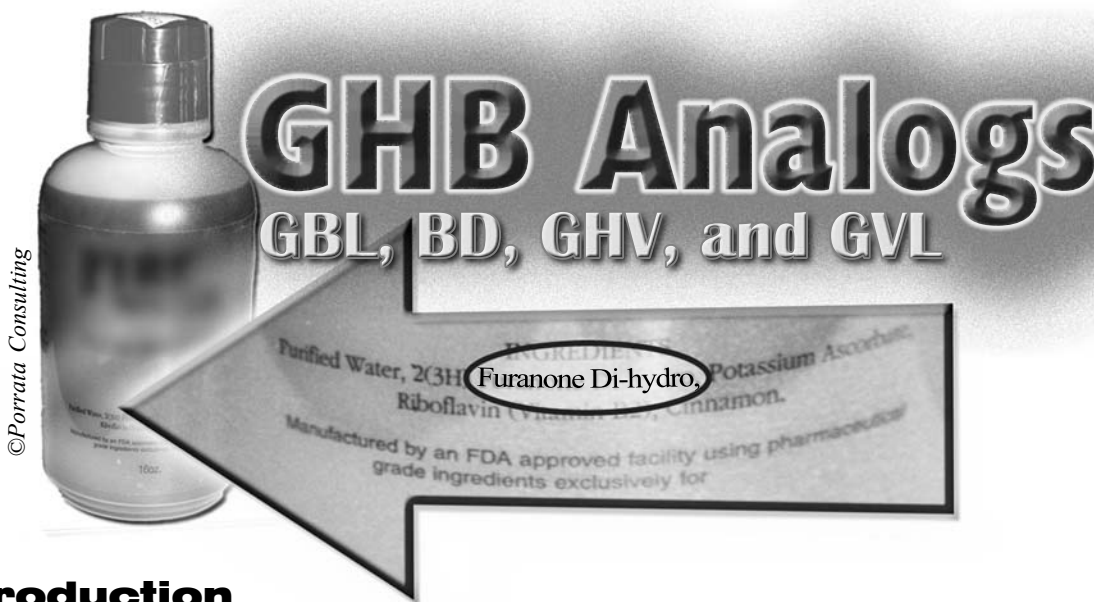




INFORMATION BULLETIN

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U. S. D E P A R T M E N T O F J U S T I C E



Introduction

Because the criminal penalties associated with GHB (gamma-hydroxybutyrate) have been made more stringent and law enforcement pressure has rendered GHB more difficult to obtain, the distribution and abuse of GHB analogs have become an increasing concern. GHB analogs, which include GBL, BD, GHV, and GVL, are drugs that possess chemical structures that closely resemble GHB. The ingestion of any of these analogs produces physiological effects similar to the effects associated with GHB abuse—relaxation, mild euphoria, and drowsiness. Abusers who emerge from a deep sleep or coma caused by GHB analogs may become easily agitated and extremely combative. GHB analogs are of particular concern because they contribute to increasing numbers of auto accidents, sexual assaults, and deaths.

While federal law prohibits the sale of analogs for human consumption, GHB analogs are available legally as industrial solvents used to produce polyurethane, pesticides, elastic fibers, pharmaceuticals, coatings on metal or plastic, and other products. These analogs also are sold illicitly as supplements

for bodybuilding, fat loss, reversal of baldness, improved eyesight, and to combat aging, depression, drug addiction, and insomnia. GBL and BD are sold as “fish tank cleaner,” “ink stain remover,” “ink cartridge cleaner,” and “nail enamel remover” for approximately \$100 per bottle—much more expensive than comparable products. Law enforcement’s efforts to identify the abuse of GHB analogs are hampered by the fact that routine toxicological screens do not detect the presence of these analogs. In addition, distributors continually develop new analogs to avoid law enforcement detection.

Analogs

GHB analogs often are abused in place of GHB or are used to produce GHB. Common GHB analogs include GBL, BD, GHV, and GVL. (See Table 1 on page 2.) Both GBL and BD metabolize into GHB upon ingestion. GBL is the most common precursor used in the production of GHB. GVL is abused in place of GHB because it metabolizes into GHV, which produces physiological effects similar to GHB.

Table 1. GHB Analogs

Analog	Chemical Name/ Alternative Name	Precursor for Production of	Metabolizes Into
GBL	gamma-butyrolactone furanone di-hydro dihydrofuranone	GHB	GHB
BD	1,4-butanediol tetramethylene glycol sucol-B butylene glycol	GBL	GHB
GHV	gamma-hydroxyvalerate methyl-GHB	*	*
GVL	gamma-valerolactone 4-pentanolide	GHV	GHV

*GHV is not used as a precursor and is not metabolized into another drug.

Abuse

GHB analogs are distributed as liquids and consumed orally. When ingested, these analogs produce effects such as relaxation, mild euphoria,

Man Drugs Wife and Babysitter With BD

In March 2002 a South Dakota man was arrested for possession of BD and the distribution of BD to a minor. The man had purchased a dietary supplement containing BD from a Canadian company over the Internet. The man's wife believes that her husband drugged both her and their babysitter with the substance. The man allegedly experimented with the product on himself in order to determine the dosage, in relation to body weight, that would achieve the desired effects. On several occasions, after consuming mixed drinks her husband prepared, the wife fell into a deep sleep and vaguely recalled her husband's having sexually abused her. One evening, when both the husband and wife had separate plans to be out of the house, the wife returned home and found the husband at home with the babysitter who said she felt drowsy. The babysitter claimed that the husband had given her something for a headache and said she recalled him rubbing her back and touching her breasts. The wife immediately took the babysitter to the hospital and notified authorities.

Source: Sioux Falls Police Department.

and drowsiness. Such effects are similar to those associated with GHB abuse and may resemble the results of alcohol intoxication. GHB analogs also may increase libido, suggestibility, passivity, and cause amnesia—traits that make users vulnerable to sexual assault and other criminal acts. Users awakening or emerging from coma may exhibit extreme combativeness, a condition which is also observed among those in withdrawal from addiction to GHB and its analogs. GHB analogs are known to produce side effects such as topical irritation to the skin and eyes, nausea, vomiting, incontinence, loss of consciousness, seizures, liver damage, kidney failure, respiratory depression, and even death. GHB analogs are physically addictive, causing addicts to experience severe withdrawal symptoms if they miss a dose or attempt to stop using the drug.

Some GHB analog abusers begin consuming dietary supplements believing the claims made by manufacturers, and then find themselves addicted to the product. GHB analogs typically are abused in place of GHB by users who want to experience the effects associated with GHB and who find the analogs more widely available or easily obtained. Often users are unaware that they are consuming an analog and mistakenly believe that the substance they are ingesting is GHB. Many users mix the analogs with flavored beverages to mitigate their salty flavor and unappealing odor. Some users, however, simply ingest the drugs straight or mixed with water. It is often difficult or impossible to detect the presence of GBL, BD, GHV, or GVL when they are mixed with other liquids because these analogs are all clear and colorless. A quick test that indicates the possible presence of GHB analogs or GHB in a clear liquid involves shaking the liquid. If it becomes cloudy, GHB analogs or GHB may be present.

Because GHB analogs either are metabolized into GHB by the human body or produce similar physiological effects when ingested, healthcare providers often are unable to distinguish between the abuse of GHB and GHB analogs. Thus, the rising abuse of GHB, evidenced by the increase in

Table 2. Emergency Department Mentions for GHB and GBL in 22 Major U.S. Cities, 1994–2000

Year	Total
1994	56
1995	145
1996	638
1997	762
1998	1,282
1999	3,178
2000	4,969

Source: Substance Abuse and Mental Health Services Administration, Drug Abuse Warning Network.

Drug Abuse Warning Network (DAWN) emergency department mentions, reflects increased GHB analog use as well. (See Table 2.)

Distribution

GHB analogs are readily available, and various methods are used to distribute these drugs. Because of legislation (see page 5), GHB analogs are legally available only in products not intended for human consumption. Abusers and distributors may obtain commercial products such as chemical solvents

BD Ingredient in Sleep Aid

On January 27, 2000, a Utah man died from taking Zen, a product containing suclo-B, an alternative name for 1,4-butanediol. The man initially purchased the product in July 1999 as a sleep aid from a local health food store and was unaware that the product contained a GHB analog. He realized he had become addicted to the substance and was trying to wean himself from it before his death. In April 2002 the man's widow reached an undisclosed settlement in a case filed in civil court holding the store responsible in the wrongful death of her husband, claiming they failed to warn consumers that the product contained an active ingredient that is processed by the body into GHB.

Sources: G. Erick Nielson and Associates (plaintiff's legal representative); *Associated Press*.

legally and then illegally consume or distribute them. Illegal distribution of GHB analogs often occurs at raves, concerts, nightclubs, health clubs, gyms, and on college campuses. At these venues GHB analogs usually are sold for \$10 to \$20 per capful (approximately 1 teaspoonful). When distributors sell these drugs, they may fail to specify which analog they are selling, or they may misrepresent the analog as GHB.

GHB analogs also are distributed at disreputable stores that sell health food and nutritional supplements. The analogs also may be marketed on the Internet and then shipped to purchasers via package delivery services. Typically, analogs are marketed as dietary supplements, sleep aids, and cleaning products. They are packaged in bottles containing 4 to 20 ounces and sold for \$40 to \$100 each. The products that are distributed as dietary supplements usually contain GVL as the active ingredient, while the cleaning supplies usually contain GBL or BD. The concentration of the analog varies; therefore, the size of a dose may range from one-half teaspoon to one-half ounce, and the number of doses per bottle may range from 24 to 48.

Individuals who illegally produce GHB analogs for human consumption often list alternative chemical names to disguise the ingredients. Most users recognize the analog by the brand name or through advertisements that tout the product as a replacement for a similar product that has been removed from the market. Products that contained BD or GBL such as RenewTrient II, Serenity, Inner-G, Soma Solution, and Blue Nitro are no longer sold, primarily because of law enforcement pressure, but comparable products with similar brand names are available.

GHB analogs often are sold with disclaimers that they are not for human consumption; however, many of the products have labels implying that the product may be ingested. One product marketed as an industrial solvent has a label that states "Warning! Accidental ingestion of [product] will produce GHB in your body. If you ingest some by mistake, don't take alcohol or any other drug!" Another product label states "Warning: Accidental ingestion may

GHB Kits

Between March 22, 1999, and January 20, 2000, two brothers operating from Mississippi and South Carolina marketed “GHB kits” on the Internet disguised as computer-cleaning solvents. The kits included instructions for producing GHB from GBL and contained enough GBL and sodium hydroxide (the chemical used to convert GBL to GHB) to make 15 to 20 doses of GHB; the kits were sold for \$55. New Jersey Statewide Narcotics Task Force investigators made nine undercover purchases by communicating via web sites and an e-mail account. Police seized a 55-gallon drum of GBL and 10 pounds of sodium hydroxide from a home owned by the brothers in Mount Pleasant, South Carolina. On March 23, 2002, a New Jersey court sentenced the brothers to 4 years in prison under a plea agreement.

Source: *Associated Press*.

cause... euphoria...increases tactile sensitivity...”. Many of the products are marketed as “Great Household Bargains” (GHB) in order to increase their exposure to individuals seeking GHB analogs.

In addition to the distribution methods discussed previously, supplies, kits, and recipes for producing GHB using the GHB analog GBL are marketed and sold on the Internet.

Tests for GHB Analogs

Seized GHB analogs frequently are not identified because detection of such analogs requires specific field and laboratory testing. Three different color tests—cobalt nitrate, Marquis reagent, and Mandelin reagent—are useful for detecting the presence of GHB analogs. (Contact forensic laboratories to obtain specific instructions regarding utilizing these test kits.) Both the Marquis reagent and the Mandelin reagent tests are available commercially.

Routine toxicological screens do not detect GHB or GHB analogs; thus, law enforcement officers and medical personnel must order specific blood and urine tests when they suspect GHB analog abuse. The most

common urine tests screen only for the “NIDA-5,” five of the most commonly abused categories of drugs—amphetamines (amphetamines, methamphetamine), cocaine (powdered cocaine, crack), cannabinoids (marijuana, hash), opiates (heroin, opium, codeine, morphine), and phencyclidine (PCP). GHB in the blood or urine can result from the ingestion of GHB, GBL, or BD. To yield a reliable result, tests for GHB and GHB analogs must be performed not long after ingestion. Urine tests for GHB and GHB analogs must be performed within 12 hours after ingestion, and blood tests must be performed within 5 hours.

Federal, state, and local forensic laboratories may not routinely test for GHB in blood or urine. For example, the Florida Department of Law Enforcement (FDLE) began testing for GHB in urine on December 1, 2000, but tests are performed only if the suspect exhibits symptoms indicating the presence of GHB. FDLE does not have the resources to conduct blood tests; if blood tests are needed, the samples to be tested must be sent to outside laboratories—some of which are located in other states.

GHB Factor in Auto Fatality

On November 21, 2000, a Florida woman under the influence of GHB crashed head-on into another car, killing a passenger in the other vehicle. Hours before the incident, the woman had been arrested after passing out at a red light. A Breathalyzer test failed to detect alcohol; however, the woman admitted to having drunk from a bottle that contained GHB. She posted bond and was released. Two weeks before the fatal collision, the driver had been ticketed for careless driving; police did not detain her because the officer at the scene did not smell alcohol and did not know to test for GHB.

Source: Florida Department of Law Enforcement; *St. Petersburg Times*.

Because GHB analogs produce effects similar to GHB, driving under the influence of the analogs is just as dangerous as driving under the influence of GHB. As a result, some agencies have adopted aggressive strategies for identifying drivers who

may have consumed GHB. The Pinellas-Pasco Medical Examiner's Office in Florida conducts GHB tests on drivers who are suspected of driving under the influence (DUI). In 2000 GHB was detected in approximately 8 percent of the suspected DUI cases that the office examined.

Legislation

On February 18, 2000, the "Hillary J. Farias and Samantha Reid Date-Rape Prohibition Act of 1999" (Public Law 106-172) was signed into law, legislating GHB as a Schedule I controlled substance. GBL was also regulated under this law as a List I controlled chemical. Illicit use of GHB analogs may now be prosecuted as Schedule I substances under 21 U.S. Code § 813.

GHB analogs are treated as controlled substances under Federal law only if intended for human consumption. According to 21 U.S.C. § 813, "a controlled substance analog(ue) shall, to the extent intended for human consumption, be treated, for the purposes of any Federal law as a controlled substance in Schedule I." Thus, authorities can prosecute drug offenses involving GHB analogs in the same manner as offenses involving GHB. (See 21 U.S.C. § 802(32) for the definition of a controlled substance analog(ue).)

Outlook

Deterring the distribution and abuse of GHB analogs poses unique challenges. Some analogs have legitimate purposes and are legally available. Distributors of illicit GHB analogs will continue to develop new products to disguise their activities, and illicit producers will continue to develop new GHB analogs for the same reasons. Web sites advertising these products will continue to be deceptive and ever-changing. Distributors will develop new disguises for GHB analogs in addition to marketing them as cleaning fluids and dietary supplements. Sharing current information and associated trends relating to GHB analogs among medical personnel, law enforcement officers, and laboratory personnel is essential to stemming the distribution and abuse of these analogs.

Sources

Annals of Emergency Medicine

Associated Press

Broward County (FL) Commission on Substance Abuse

Emedicine, www.emedicine.com

Florida Department of Law Enforcement

G. Erick Nielson and Associates

Hazelden Foundation

Journal of Medicinal Chemistry

Journal of the Clandestine Laboratory Investigating Chemists Association

Missouri State Highway Patrol

Neuropharmacology

New England Journal of Medicine

Pennsylvania Attorney General, Bureau of Narcotics Investigation and Drug Control

Porrata Consulting, Inc.

Sioux Falls Police Department

St. Petersburg Times

U.S. Code Title 21, Food and Drugs

U.S. Department of Health and Human Services

Food and Drug Administration

National Institutes of Health

National Institute on Drug Abuse

Community Epidemiology Work Group

Substance Abuse and Mental Health Services Administration

Drug Abuse Warning Network

U.S. Department of Justice

Drug Enforcement Administration

Philadelphia Field Division

St. Louis Field Division

United Nations Office for Drug Control and Crime Prevention

WebMD Medical News, onhealth.webmd.com

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