

SENATE STAFF ANALYSIS AND ECONOMIC IMPACT STATEMENT

(This document is based only on the provisions contained in the legislation as of the latest date listed below.)

BILL: CS/SB 726

SPONSOR: Criminal Justice Committee and Senator Bronson

SUBJECT: Nitrous Oxide

DATE: March 20, 2000 REVISED: _____

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	<u>Erickson</u>	<u>Cannon</u>	<u>CJ</u>	<u>Favorable/CS</u>
2.	<u>Mannelli</u>	<u>Hadi</u>	<u>FP</u>	<u>Favorable</u>
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

I. Summary:

Committee Substitute for Senate Bill 726 provides that a person who knowingly distributes, sells, purchases, transfers, or possesses more than 16 grams of nitrous oxide for a use other than those specified commits a third degree felony known as unlawful distribution of nitrous oxide.

In addition to proving by any other means that the nitrous oxide was knowingly possessed, distributed, sold, purchased or transferred for any persons not specifically prescribed, any person who discharges or aids another in discharging nitrous oxide to inflate a balloon or any other object suitable for subsequent inhalation creates an inference of the person's knowledge that the nitrous oxide's use was not for a specifically prescribed purpose.

This CS substantially amends s. 877.111, F.S.

II. Present Situation:

A. Nitrous Oxide

Nitrous oxide, commonly known as "laughing gas," is an oxygenated compound (dinitrogen monoxide). It is one of several naturally occurring greenhouse gases but can also be created by thermal decomposition of ammonium nitrate, a common ingredient in fertilizers and explosives. Compressed Gas Association (information for this section is generally from this source unless otherwise noted).

Nitrous oxide is a clear, colorless liquefied gas with a slightly sweet odor. It's current illicit use as a "recreational" drug has historical antecedents. In the 1800's, "recreational" use of nitrous oxide was common in Europe, Great Britain and North America. Addiction Research Foundation. In the 1840's the effects of nitrous oxide were demonstrated to the public in "laughing gas demonstrations." Lighthouse Recovery Center. The gas was introduced in the 1850's as an

anesthetic, and its medical use, along with the use of other anesthetic agents, such as diethyl ether, led to a new branch of medicine known as “anesthesiology.” Id.

B. Legitimate Use of Nitrous Oxide

The primary, legitimate use of nitrous oxide today is by doctors and dentists for general anesthesia (composing approximately 89-90 percent of the consuming market/application). It is also used to a more limited extent in veterinary medicine because it is only about half as potent in animals as in people. Benson, “Anesthesia and Analgesia: Physiologic Effects of Pharmacologic Agents,” Yale Animal Resource Center.

Nitrous oxide stimulates the sympathetic nervous system. Benson, *supra*. It does not completely block pain but rather alters the perception of pain, thereby relieving distress. Indiana Prevention Resource Center, Indiana University. The painkilling and numbing qualities of the gas begin to take effect when the gas is at concentrations of 10 percent. The gas tends to induce a pleasant, dreamy state of consciousness, somewhere between waking and sleeping. Id. In medical use, side effects are minimized by medical knowledge of appropriate dosage levels and the combination of nitrous oxide with 60 to 70 percent oxygen. In medicine, the gas is often mixed with halogenated gases; in dentistry, with local anesthetics. Indiana Prevention Resource Center, *supra*.

Other uses for nitrous oxide include its use as an aerosol packaging propellant such as for food processing (primarily as an aerosol propellant and flavoring agent for whipping cream); an oxidizer for manufacturing electronic components such as semiconductors; an analytical chemistry oxidizer in atomic absorption spectrometry; an oxidizer in chemical manufacturing; and an octane booster for race cars (a boosting agent to accelerate combustion). In the latter use, the nitrous oxide is mixed with sulfur dioxide or other gases to discourage inhalation.

C. Distribution of Nitrous Oxide

Between 30 and 35 million pounds of nitrous oxide are produced each year for legitimate use. Producers ship the gas to approximately 300 customers, most of whom are repackers. Repackers store the product in liquid tanks. The product is pumped into cylinders to other distributors and to end users. The cylinders range in size from two to five feet and contents range from six pounds to 60 pounds, and legitimate users typically pay between \$40 and \$75 per cylinder.

The U.S. Department of Transportation regulates transportation of compressed gases. The manufacture, distribution and possession of the gas in medical form is monitored in Florida by the Florida Department of Health. The quality of gas used for whipping cream is often the same as the medical grade. However, if the product is labeled as “technical grade” or labeled as nitrous oxide for atomic absorption, it is not regulated by the department.

D. Illicit Use of Nitrous Oxide

According to National Institute on Drug Abuse (NIDA), of the anesthetics categorized under the general category of “inhalants,” nitrous oxide is the principal substance of abuse. While commonly grouped with inhalants and inhalant abuse, this is not a convention followed in the DSM-IV,

which restricts inhalant abuse to volatile solvents and diagnoses anesthetic gas abuse (including nitrous oxide abuse) separately. Texas Commission on Alcohol and Drug Abuse.

According to one news report, inhalants, including nitrous oxide, “have been widely used in the underground club scene for at least three decades, but are now being used among the more mainstream party crowds in clubs.” Parvaz, “Inhalants are common, yet especially dangerous,” Seattle Post-Intelligencer Reporter, August 3, 1999. Street names for nitrous oxide include “nitrous,” “hippie crack,” “balloons,” “cartridges,” “hysteria,” “tanks,” “breeze,” “fall down,” “laughing gas,” “whippets,” “whippits,” “buzz bombs,” “gas,” and “pan.” Texas Commission on Alcohol and Drug Abuse; NIDA. According to NIDA, while juveniles are the primary abusers of inhalants generally, current reports indicate that college age and older adults are the primary abusers of nitrous oxide.

Factors contributing to the illicit use of nitrous oxide, as well as the use of other inhalants, are that inhalants are inexpensive, legal and easy to purchase, don’t need to be concealed, adults often are not aware that inhalant use is a problem, and young people are typically unaware of the consequences of inhalant use. National Education Association; Do It Now Foundation. One news report notes nitrous oxide use as a growing trend on college campuses. “MIT Student Dies from Inhaling Nitrous Oxide,” Join Together Online, March 6, 2000.

For medical use, nitrous oxide is compressed and stored in metal tanks to which a hose and mask are attached. Nitrous oxide tanks used for illicit nitrous oxide use are typically procured by street dealers through burglaries of medical/dental offices and distributors, illegally obtaining a legitimate nitrous oxide use permit, or misrepresenting themselves as legitimate users. Some auto supply stores also have tanks of nitrous oxide. Other means of obtaining nitrous oxide are through pressurized food dispensing containers and nitrous oxide dispensers (“whippets”), small canisters used for making homemade whipping cream. Both can be legally obtained. Whippets can be procured at gourmet food shops, “head shops,” restaurant supply stores, hardware stores, and through Internet mail-order services. A box of twenty four whippets can be purchased from a store for approximately 12 to 14 dollars. These canisters contain four to eight grams of nitrous oxide.

Nitrous oxide can be inhaled from a tank by use of a hose and a mask. Columbia University Health Education Program. The gas can also be inhaled from balloons filled from tanks or canisters. Id. Dealers typically charge three to five dollars for each balloon. The gas in a whippet fills approximately one balloon, the amount a typical user would inhale at one time. Pressurized cans of whipped cream can also be held and the valve pressed in such a way to permit only release of the propellant. Wisconsin Clearinghouse for Prevention Resources. Other methods of transmission include releasing the gas in a room or automobile and placing a plastic bag filled with the gas over the person’s head. Columbia University, supra. The latter is especially dangerous because the person may lose consciousness while the bag is over her or his head. Id.

E. Adverse Effects of Nitrous Oxide Use

When a person inhales pure nitrous oxide, the gas travels to the lungs where it is absorbed into the bloodstream and eventually reaches the organs, such as the heart and brain, where it replaces

oxygen. Nitrous oxide tends to absorb oxygen in the body. This absorption results in a vitamin B-12 deficiency, which at a certain level, lowers the red blood cell count, and results in anemia and nerve degeneration. Reported psychoactive effects include euphoria, giddiness, reduced pain and depression, dreamy detachment, change in body image, altered time perception, and awareness of reduced cognitive-motor proficiency. Atkinson, Moozumi, Green & Kramer, "Nitrous Oxide Intoxication: Subjective Effects in Healthy Young Men," *Journal of Psychedelic Drugs*, October-December 1997; Helisten, "Nitrous Oxide's a Gas," *The PharmChem Newsletter*, May 1976.

Adverse effects reported are numerous. Inhalation of the gas, at a certain level, can shut down brain transmissions that tell the body to breathe. The Addiction Medicine Forum, Copyright 1999 Med Help. Additionally, because the gas displaces oxygen in the body, at a certain level of use of the gas, a person can asphyxiate from oxygen depletion ("brain anoxia"). Nitrous oxide use is particularly dangerous when combined with driving because of the effect of the gas on balance, perception, and the person's judgement, and also because the gas can cause sudden position-related blood pressure changes sufficient to induce syncopal ("blackout") episodes. Chronic exposure to low levels of nitrous oxide, once thought to be safe, can also cause serious damage. Medical personnel who work with too much [nitrous oxide] develop anemia, nerve damage, fertility problems, and disorders of the immune system and chronic abusers face the same risks. The Addiction Medicine Forum, *supra*.

Other possible adverse effects of nitrous oxide use that have been noted include oxygen deprivation; nausea; headaches; disorientation; hallucinations; sleepiness; lack of coordination; loss of appetite; vomiting; unconsciousness; lung collapse; interference with vitamin B-12 metabolism resulting in neurologic and hematologic complications, including peripheral neuropathies or limb spasms; depression of heart muscular functioning; cardiac rhythm disturbances; and frozen tissue injury of the lips, nose, esophagus and lungs (inhalation directly from a tank or canister). Further, use of the gas has been linked with risk of miscarriage, birth defects, kidney and liver defects, infertility, mood disorder, and addiction. Espinoza, "Nitrous Oxide Abuse," *QueensParent* (<http://family.go.com.Features/fami...p/qnsp97nitrous/qnsp97nitrous.html>); Rizk, "You can get it anywhere . . . its dangerous," *The Detroit News*, January 4, 1996; Columbia University's Health Education Program; the National Inhalant Prevention Coalition; NIDA: Do it Now Foundation; Lighthouse Recovery Center; Flam, "She Who Laughs Gas Conceives Last," *Science News*, March 25, 1989; Gilman, "Nitrous Oxide Addiction," *The American Journal of Medicine*, July 1986; Grigg, "Nitrous Oxide Mood Disorder," *Journal of Psychoactive Drugs*, October-December 1988; Helisten, *supra*; "Nitrous Oxide Hazards," *FDA Drug Bulletin*, July 1980; "Teratogenicity of Nitrous Oxide," *FDA Drug Bulletin*, March 1981.

F. Reported Deaths

According to the Florida Department of Health, at least five deaths have occurred in Florida this year due to the inhalation of nitrous oxide: Leon County (two deaths); and Wakulla, Duval and Brevard counties (one death in each county). The department notes that deaths from nitrous oxide inhalation may be under-reported because nitrous oxide dissipates quickly from the blood post-mortem.

There is currently no national reporting system on deaths from inhalants, including the subset of deaths from nitrous oxide use. NIDA. OSHA data indicates that there were 11 nitrous oxide-related deaths on the job in the 1980's, most occurring in restaurants or food facilities using whipped cream dispensers charged by nitrous oxide canisters. "Nitrous Oxide Death," The Journal, November 1990.

According to Dr. H. Westley Clark, the Director of the Center for Substance Abuse Treatment in Washington D.C., the percentage of 18 to 25-year-olds who have used nitrous oxide increased from 6.6 percent in 1997 to 7.9 percent in 1998. "MIT Student Dies from Inhaling Nitrous Oxide," Join Together Online, March 6, 2000.

G. Other States

According to the National Inhalant Prevention Coalition, using figures from the National Conference of State Legislatures, at least three states have laws which specifically prohibit certain sales and distribution of nitrous oxide and 34 other states have inhalant laws that may or may not cover illicit nitrous oxide use.

H. Florida Law on Nitrous Oxide

Section 877.111(1), F.S., provides that it is unlawful for any person to inhale or ingest, or to possess with the intent to breathe, inhale, or drink any compound, liquid, or chemical containing one of a specified list of 15 substances, including nitrous oxide, for the purpose of inducing a condition of intoxication or which distorts or disturbs the auditory, visual or mental processes. Exempted from this subsection is use of these substances as part of the care or treatment of a disease or injury by a practitioner licensed under chapters 458, 459, 464, or 466, F.S., or to beverages controlled by the provisions of chapters 561, 562, 563, 564, or 565, F.S.

Section 877.111(2), F.S., provides that it is unlawful for any person to possess, buy, sell, or otherwise transfer any substance specified in subsection (1) for the purpose of inducing or aiding any other person to violate the provision of subsection (1). Section 877.111(3), F.S., provides that any violation of subsections (1) or (2) is a second degree misdemeanor.

Section 877.111(4), F.S., provides that any person who violates any of the provisions of the section may, in the discretion of the trial judge, be required to participate in a substance abuse services program approved or regulated by the Department of Health pursuant to chapter 397, F.S., provided the director of the program approves the placement of the defendant in the program. Further, such required participation may be imposed in addition to, or in lieu of, any penalty or prohibition otherwise prescribed by law. However, the total time of such penalty, probation, and program participation cannot exceed 60 days, the maximum sentence for a second degree misdemeanor.

III. Effect of Proposed Changes:

Committee Substitute for Senate Bill 726 amends s. 877.111, F.S., to create a new subsection which provides that any person who knowingly distributes, sells, purchases, transfers, or possesses more than 16 grams of nitrous oxide for any use other than one of a specified list of

uses commits a third degree felony, punishable as provided in ss. 775.082, 775.08, and 775.084, F.S., which shall be known as unlawful distribution of nitrous oxide.

The list of uses prescribed and exempted from this penalty provision include:

- ▶ Use as part of the care or treatment of a disease or injury by a practitioner licensed under chapters 458, 459, 464, 466, or 474, F.S.;
- ▶ Use as a food processing propellant;
- ▶ Use as a semiconductor oxidizer;
- ▶ Use as an analytical chemistry oxidizer in atomic absorption spectrometry;
- ▶ Use in the production of chemicals used to inflate airbags;
- ▶ Use when nitrous oxide is mixed with not less than 100 parts per million of sulfur dioxide; and
- ▶ Use as an oxidizer for chemical production, combustion or jet propulsion.

The new subsection further provides that, for purposes of this subsection, in addition to proving by any other means that nitrous oxide was possessed, distributed, sold, purchased or transferred for any purpose not specified in the above list, any person who discharges or aids another in discharging nitrous oxide to inflate a balloon or any other object suitable for subsequent inhalation creates an inference of the person's knowledge that the nitrous oxide's use was for a purpose other than those prescribed in the subsection.

The CS provides for an effective date of July 1, 2000.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

V. Economic Impact and Fiscal Note:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

None.

C. Government Sector Impact:

Committee Substitute for Senate Bill 726 is virtually identical to CS/HB 75, which the Criminal Justice Estimating Conference estimates will have an insignificant impact.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Amendments:

None.

This Senate staff analysis does not reflect the intent or official position of the bill's sponsor or the Florida Senate.
