



FEATURED PRODUCT

Fentanyl

Fentanyl is a highly potent synthetic opioid used as an analgesic (pain relief) and anaesthetic, which is up to 50 times stronger than heroin and 100 times more potent than morphine.¹

It was originally developed in the 1950s, and introduced in the 1960s as an intravenous anaesthetic.¹ It is now on the World Health Organisations (WHO's) Model List of Essential Medicines, deemed necessary to satisfy the priority health care needs of the population. Illicitly manufactured fentanyl has become a major contributor to fatal and non-fatal drug overdoses.

The Centers for Disease Control and Prevention (CDC) estimates that over 150 people die every day from overdoses related to synthetic opioids like fentanyl.²



Fentanyl

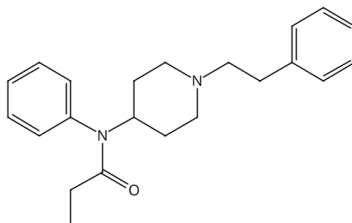
Chiron part: 9471.22

Synonym: Fentanyl; Sublimaze;
Duragesic; Fentanest; Leptanal

CAS: 437-38-7

Molecular Weight: 336.47

Molecular Formula: C₂₂H₂₈N₂O



What is Fentanyl?

The drug was first synthesised in 1960 by Dr Paul Janssen, a Belgian chemist. It was the most potent opioid in the world when it was first created. In the early 1960s, Fentanyl was introduced across several Western European countries, where it was used as an intravenous painkiller.⁵ Throughout this time, there was concern about misuse of fentanyl which contributed to fatal and nonfatal overdoses.

In 2021, the majority of the approximately 90,000 opioid related overdose deaths in North America involved illegally manufactured fentanyls. The COVID-19 pandemic is believed to have accelerated the non-medical use of fentanyl.⁶

Presentation and route of administration

Fentanyl is usually available in two main forms: powder and liquid.³ It can be found in lozenges (commonly referred to as fentanyl 'lollipops'), buccal tablets, sublingual tablets, sublingual sprays, nasal sprays, transdermal patches and injectable formulations.⁴

Powdered fentanyl can look like many other drugs. It is commonly mixed with drugs such as heroin, cocaine and methamphetamine and made into pills.²

Fentanyl can be injected, snorted/sniffed, smoked, ingested by pill or tablet, spiked onto blotter paper, or used in combination with other drugs.

Physical, mental and behavioural effects

EUPHORIA



RELAXATION



PAIN RELIEF



NAUSEA & VOMITING



DROWSINESS, DIZZINESS & CONFUSION



URINARY RETENTION



PUPILLARY CONSTRICTION



RESPIRATORY DEPRESSION



What are the concerns?

Fentanyl and other synthetic opioids are the most common drugs involved in fatal and non-fatal overdoses. Exposure to fentanyl can be deadly.

Fentanyl overdose may result in stupor, changes in pupillary size, cold and clammy skin, cyanosis, coma, and respiratory failure which can lead to death.

What is the legal status of Fentanyl?

Fentanyl was placed under international control as a Schedule 1 substance in 1964 under the Single Convention on Narcotic Drugs of 1961.

Fentanyl and its analogues can be manufactured through a variety of different synthesis methods, which each involve the use of specific precursor chemicals.

Fentanyl precursors

There are currently five fentanyl precursors under international control. ANPP and NPP were the first to be added to table 1 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988 (the 1988 Convention) in March 2017.

More recently, in March 2022, the Commission on Narcotic Drugs (CND) included 4-AP, 1-BOC-4-AP and Norfentanyl in table 1. This decision came into effect on 23rd November 2022.

Norfentanyl and 4-ANPP are additionally metabolites of fentanyl.¹⁰

Norfentanyl

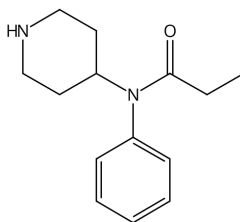
Chiron part: 11859.14

Synonym: N-Phenyl-N-4-piperidinyl-propanamide; NSC 89293

CAS: 1609-66-1

Molecular Weight: 232.32

Molecular Formula: C₁₄H₂₀N₂O



Fentanyl adulterants

Illicit fentanyl may be relatively pure or mixed with one or more cutting agents such as mannitol, lactose, and paracetamol, or adulterants such as heroin and other opioids.

An animal tranquilliser called xylazine is increasingly being found in the US illicit drug market and has been linked to overdose deaths.

Xylazine is a drug used in veterinary medicine, but it is not approved for use in humans and cannot be purchased without a veterinary licence. In humans, xylazine acts as a CNS depressant and can cause respiratory depression, slowed heart rate and hypotension. More visably alarming side effects include skin ulcers and infections, which have fueled its 'flesh-destroying' reputation amongst the media.⁷

In April 2023, the White House Office of National Drug Control Policy (ONDCP) officially designated fentanyl adulterated or associated with xylazine as an emerging threat to the United States.⁸

The presence of xylazine in drug analysis increased in every region in the United States from 2020-2021. One study from 10 US cities reported that xylazine was involved in less than 1% of drug overdose deaths in 2015, in comparison with nearly 7% in 2020. Towards the end of 2022, medetomidine, another veterinary drug, has been seen with increasing incidence alongside fentanyl and xylazine. Medetomidine is a racemic mixture of dexmedetomidine and levomedetomidine, the former being the active component.⁹

Xylazine hydrochloride

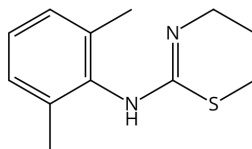
Chiron part: 13804.12

Synonym: Anased; BAY 1470; Cervizine 300; Primazine; Rometar; Sedomin; Wh 7286; Xylaz; Xylazil; Xylazin

CAS: 23076-35-9

Molecular Weight: 256.79

Molecular Formula: C₁₂H₁₆N₂S x HCl



• HCl



What does Chiron offer?

Available Standards:

Fentanyl

Chiron No.	Name	Synonym	CAS
9471.22	Fentanyl	Fentanil; Sublimaze; Duragesic; Fentanest; Leptanal	437-38-7
12760.22	Fentanyl citrate	Fentanil citrate	990-73-8
9184.22	Fentanyl-d5 (N-phenyl-d5)	Fentanil-d5	118357-29-2
12785.22	Fentanyl-d5 hydrochloride (N-phenyl-d5)	Fentanil-d5 HCl (N-phenyl-d5)	2747915-16-6
13905.22	Fentanyl-d5 hydrochloride (ethylphenyl-d5)	Fentanil-d5 HCl (ethylphenyl-d5)	201415-26-1 (free base)

Fentanyl precursors

Chiron No.	Name	Synonym	CAS
11859.14	Norfentanyl	Norfentanil; NSC 89293	1609-66-1
9237.14	Norfentanyl-d5 (phenyl-d5)	Norfentanil-d5 (N-phneyl-d5)	1211527-23-9
12732.14	Norfentanyl-d5 (phenyl-d5) hydrochloride	Norfentanil-d5 (N-phenyl-d5) HCl	22352-81-4 (unlabelled)
12035.19	4-ANPP	Despropionyl fentanyl	21409-26-7
15192.19	4-ANPP-d5 (anilino-d5)	Despropionyl fentanyl-d5	1189466-15-6
15100.10	4-Anilino-1-Boc-piperidine	4-ANBocP; N-Boc-4-AP; 1-Boc-4-(Phenylamino)piperidine	125541-22-2
15101.12	4-Anilinopiperidine dihydrochloride	4-AP 2HCl	99918-43-1
14221.12	1-Benzyl-4-piperidone	1-Benzyl-4-oxopiperidine	3612-20-2
14087.13	N-Phenethyl-4-piperidone	NPP; NSC 74494	39742-60-4

Emerging adulterants

Chiron No.	Name	Synonym	CAS
13804.12	Xylazine hydrochloride	Anased; BAY 1470; Cervizine 300; Primazine; Rometar; Sedomin; Wh 7286; Xylaz; Xylazil; Xylazin	23076-35-9
10156.8	2,6-Dimethylaniline	2,6-Xylidine	87-62-7
15562.12	Detomidine hydrochloride	MPV 253All	90038-01-0
11178.13	Medetomidine hydrochloride	MPV 785	86347-15-1
15563.13	Dexmedetomidine hydrochloride	MPV 1440; Dex; Precedex; (+)-Medetomidine; (S)-Medetomidine	145108-58-3

Looking for something else? Ask us about our extensive range of designer fentanyl standards. For a quotation, please contact us today at sales@chiron.no.

References

1. DEA | <https://www.dea.gov/sites/default/files/2023-03/Fentanyl%202022%20Drug%20Fact%20Sheet.pdf> | 2022
2. CDC | <https://www.cdc.gov/stopoverdose/fentanyl/index.html> | 2023
3. Fentanyl Facts, UC Davis Health | <https://health.ucdavis.edu/blog/cultivating-health/fentanyl-overdose-facts-signs-and-how-you-can-help-save-a-life/2023/01#> | 2023
4. DEA - Drug & Chemical Evaluation Section, Fentanyl | https://www.deadiversion.usdoj.gov/drug_chem_info/fentanyl.pdf | 2023
5. Pharmaceutical Technology, Fentanyl: where did it all go wrong? | <https://www.pharmaceutical-technology.com/features/fentanyl-go-wrong/> | 2018
6. World Drug Report 2023, UNODC | <https://www.unodc.org/unodc/en/data-and-analysis/world-drug-report-2023.html> | 2023
7. Xylazine Detection and Involvement in Drug Overdose Deaths, CDC | <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037a4.htm> | 2021
8. Biden-Harris Administration Designates Fentanyl Combined with Xylazine as an Emerging Threat to the United States | <https://www.whitehouse.gov/ondcp/briefing-room/2023/04/12/biden-harris-administration-designates-fentanyl-combined-with-xylazine-as-an-emerging-threat-to-the-united-states/> | 2023
9. Centers for Disease Control and Prevention, What You Should Know About Xylazine | <https://www.cdc.gov/drugoverdose/deaths/other-drugs/xylazine/faq.html> | 2023
10. INCB, Precursors Annual Report | https://www.incb.org/incb/en/precursors/technical_reports/precursors-technical-reports.html | 2022



Your quality is our business

Chiron AS | Stiklestadveien 1 | N-7041 | Trondheim | Norway

☎ +47 73 87 44 90 ✉ sales@chiron.no 🌐 www.chiron.no

