

DESIGNER BENZODIAZEPINES

RESEARCH CHEMICAL PRESENTATION



HARMFUL



NOT FOR PRESENTATION
TO ANYONE UNDER 18

NOT FOR HUMAN
CONSUMPTION

Benzodiazepines



Diazepam Tetrazepam Ketazolam Flurazepam

Estazolam Nimetazepam Cinolazepam

Etizolam Nordazepam Bromazepam Lormetazepam

Flunitrazepam Lorazepam Pinazepam Chlordiazepoxide

Triazolam Premazepam Nitrazepam Temazepam

Clorazepate Medazepam Halazepam Prazepam Clonazepam

Flutoprazepam Quazepam Alprazolam Cloxazolam

Phenazepam Loprazolam Oxazepam Midazolam

Pyrazolam Pyrazolam





- Anticonvulsants
- Anxiolytics
- Muscle relaxants
- Hypnotic
- Alcohol withdrawal



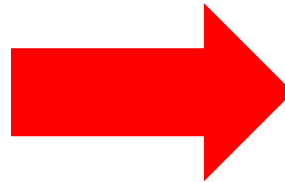
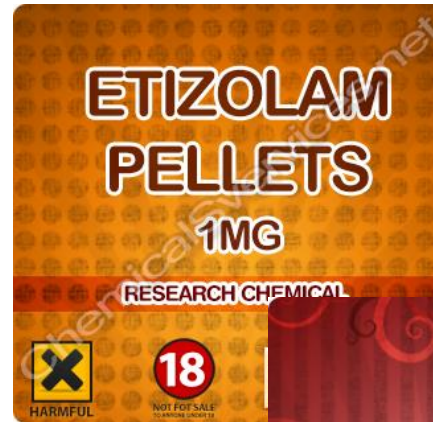
1. Over prescribing resulting in dependency
2. Recreational abuse
 - In isolation
 - To achieve a high
 - CNS depressant properties
 - Poly drug abuse
 - To enhance the effects of other CNS depressant drugs
 - Alleviate withdrawal effects
 - To combat effects of stimulants
3. Drug facilitated crime
 - Sexual crime
 - Robbery
 - Neglect

Benzodiazepine side effects/withdrawal



Side Effects	Withdrawal
Anterograde amnesia	Anxiety
Rapid Tolerance	Irritability
Dependence	Dysphonia
Severe withdrawal	Decreased concentration
Injection injuries	Insomnia /Malaise
Dizziness	Nausea
Blurred vision	Muscle twitching / tremors
Nausea	Sweating
Appetite changes	Convulsions

The changing face of benzodiazepines



Time line



2009

- Phenazepam

2012

- Etizolam

2012

- Pyrazolam

2012

- Flubromazepam

2012

- Diclazepam

2014

- Nifoxipam

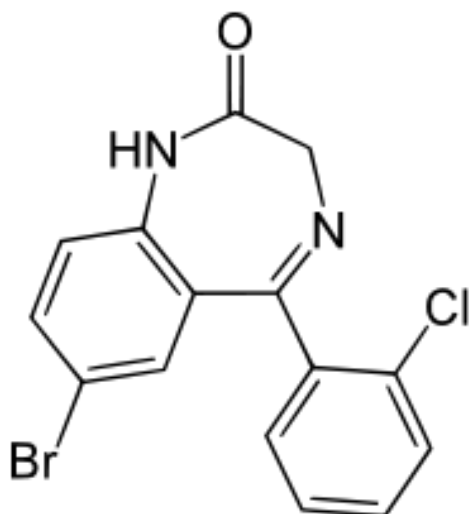
2015

- ????

Phenazepam



Chemical Name: 7-bromo-5-(2-chlorophenyl)-1,3-dihydro-2H-1,4-benzodiazepin-2-one



(CAS 51753-57-2)

Synonyms: Fenazepam, Bonsai, PNZ

Origin: Developed in the Russia in the mid- to late 1970s

Therapeutic use: Anticonvulsant, anxiety, premedication

Appearance: Tablets (0.5mg), fine white powder, liquid (1mg/mL)

Potency: ~5X diazepam

Dose: 1-2mg (Max daily dosage of 10mg)

ROA: Snorted or swallowed

Peak effects: 2-3hrs

T_{1/2}: 60 hours

Metabolites: 3-Hydroxyphenazepam, 3-Oxy-phenazepam

Advisory Council on the Misuse of Drugs , ACMD advice on phenazepam, 20 July2011:

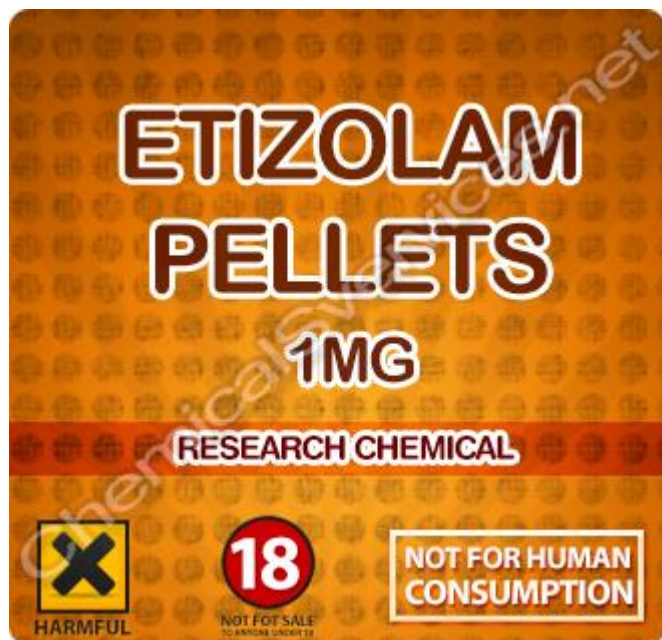
<https://www.gov.uk/government/publications/acmd-advice-on-phenazepam>



Phenazepam: 2211.15, 3-Hydroxyphenazepam: 8825.15, Phenazepam 4-oxide: 9947.15



Chemical Name: 7-(2-Chlorophenyl)-4-ethyl-13-methyl-3-thia-1,8,11,12-tetraazatricyclo[8.3.0.0^{2,6}] trideca-2(6),4,7,10,12-pentaene



(CAS 40054-69-1)

Synonym: Depas (Trade name) Zoly, Sylazepam, Pasaden, Mozun, Inxity, Etizola, Etisedan, Etilaam, eticalm, Dezolam, Depas

Origin: Japan in 1983

Therapeutic use: Insomnia, anxiety and panic attacks

Appearance: Tablet, Pellet

Dose: 1mg

ROA: Orally (injection, anally)

Cmax: 30min-2.5hr

Plasma concentration: 25ng/mL (peak, 2mg)

T_{1/2}: (3.5hr) 6hr

Metabolites: α -Hydroxyetizolam, 8-Hydroxyetizolam



Chemical Name: 8-bromo-1-methyl-6-pyridine-2-yl-4H-[1,2,4] triazolo[4,3-a][1,4]benzodiazepine

‘Designer Benzodiazepine’



(CAS 39243-02-2)

Origin: 1st reported in 1979. Not marketed by pharmaceutical companies anywhere in the world

Appearance: Pellets

Dose: 0.5mg (measured 0.47mg)

Potency: ~12X Diazepam

Duration of action: 6hrs (Vendor stated)

T_{1/2}: 17hr

Metabolism: Not extensively metabolized

Detectability (1mg, LOD 1ng/mL)

- Serum >50 h
- Urine approximately 6 days

Moosmann *et al.* Characterization of the designer benzodiazepine pyrazolam and its detectability in human serum and urine. Forensic Toxicology. July 2013, Volume 31, Issue 2, pp 263-271



Flubromazepam

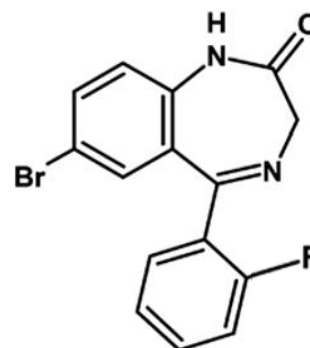


Chemical Name: 7-bromo-5-(2-fluorophenyl)-1,3-dihydro-1,4-benzodiazepin-2-one

Origin: Synthesis described in 1962 by Sternbach et al.



(CAS 2647-50-9)



Flubromazepam

Moosmann *et al.* Detection and identification of the designer benzodiazepine flubromazepam and preliminary data on its metabolism and pharmacokinetics. Accepted for publication in J Mass Spectrom DOI: 10.1002/jms.3279





(CAS 2647-50-9)

Dosage: 4mg

T_{1/2}: >106 h

VD: 0.73 L/kg

Clearance: 0.346 L/h

Metabolites: OH-flubromazepam, debrominated flubromazepam, debromated-OH-flubromazepam

Poor cross reactivity with commercial immunoassays

Moosmann *et al.* Detection and identification of the designer benzodiazepine flubromazepam and preliminary data on its metabolism and pharmacokinetics. Accepted for publication in J Mass Spectrom DOI: 10.1002/jms.3279

Diclazepam



Chemical Name: 7-chloro-5-(2-chlorophenyl)-1-methyl-1,3-dihydro-2H-1,4-benzodiazepin-2-one



(CAS 2894-68-0)

Synonyms: Chlorodiazepam, Ro 5-3448

Origin: 1st synthesised by Hoffman-La Roche in the 1960's

T_{1/2}: 42 h

Appearance: White or purple pellets

Dose: 1mg pellets (0.59-1.39mg), 2mg less common

Potency: ~10X diazepam

Metabolites: Delorazepam, Lorazepam, and Lormetazepam

Moosmann et al. Characterization of the designer benzodiazepine diclazepam and preliminary data on its metabolism and pharmacokinetics. Drug Test Anal. 2014 Mar 6. doi: 10.1002/dta.1628.





Chemical Name: 5 – (2-fluorophenyl)-3- hydroxy -7-nitro -1H- benzodiazepine -2 (3H) –one

Synonym: 3-hydroxy-desmethylflunitrazepam

Availability: Poland, Sweden

chemicalservices.net

“During laboratory testing , we recommend that at least 2mg Nifoxipam used”

“Nifoxipam is perfectly legal in Sweden and will remain legal after the classification of Pyrazolam , Diclazepam and Flubromazepam April 9 .”

“Seems Swedish RC vendors are making a ton of new legal benzo”



(CAS 74723-10-7)



Abused benzodiazepines may be;

- Black market or diverted prescription medication
 - Diazepam, temazepam
- Little known about pharmaceuticals
 - Phenazepam, etizolam
- Designer benzodiazepines
 - Pyrazolam, flubromazepam, nifoxipam
- Producers of new benzodiazepine legal highs are likely making use of historical published literature
- Further substances in this class are anticipated
- The potential range of new pharmacologically active benzodiazepines is substantial



Recreation

- 1- Nifoxipam (1-3mg)
- 2- Midazolam (7.5mg)
- 3- Diazepam (15-25mg)
- 4- Flubromazepam (4-8mg)
- 5- Alprazolam (0.5-1.5mg)
- 6- Pyrazolam (1-2.5mg)
- 7- Clonazepam (1-2mg)
- 8- Etizolam (0.5-2mg)
- 9- Lorazepam (2-4mg)
- 10- Diclazepam (2-4mg)

Therapeutic/medicinal use (anxiety)

- 1- Diclazepam
- 2- Diazepam
- 3- Pyrazolam
- 4- Nifoxipam
- 5- Lorazepam
- 6- Flubromazepam
- 7- Clonazepam
- 8- Alprazolam
- 9- Etizolam
- 10- Midazolam

Jesusgreen; 22-04-2014 at 01:39 (Poland)