



LIFTMODE  
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## CERTIFICATE OF ANALYSIS

### Phenibut HCL Powder

(β-phenyl-γ-aminobutyric acid HCl)

Material Lot #: 170818      Manufacture Date: 08/18/2017  
Country of Origin: China      Expiration Date: 08/18/2020

Analysis	Claim	Result
Phenibut HCL	≥99.0%	99.4%

Test	Specification	Result
Appearance	Almost White Crystal	Complies
Related Substances	≤0.1	Complies
Clarity of Solution	1*	Complies
Iron %	≤0.005%	Complies
Melting Point	194.0-202.0°C	197.1-198.7°C
pH	2.3-2.7	2.36
Loss on Drying	≤0.5%	0.23%
Residue on Ignition	≤0.1%	0.06%
Mesh Size	15-30 Mesh	Conforms
Heavy Metals (µg/g)	≤10 ppm	Conforms

Phenibut HCl should be stored at or below room temperature in a tightly sealed durable container.  
Phenibut HCl should be protected from excess heat, direct sunlight, excess humidity and moisture.  
Phenibut HCl has a stable shelf life of 3 years from the date of manufacture when properly stored.



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Product Name	Phenibut HCl	Product Lot #	170818
Report Date	12/04/2017	Laboratory #	9515

Description	Test Method	Results
Identification	1H-NMR	Conforms
Assay	HPLC	99.3%
Lead	ICP-MS USP<730>	0.024ppm
Arsenic	ICP-MS USP<730>	<0.001ppm
Cadmium	ICP-MS USP<730>	<0.001ppm
Mercury	ICP-MS USP<730>	0.018ppm

Peter Yoho PhD  
QA Auditor

12/04/2017  
Date

12/4/17

## Phenibut HCl

- Reduces stress
- Promotes healthy sleep
- Creates feeling of well-being
- Phenibut is a nonopioid substance that acts as a GABA agonist to treat stress and anxiety and promote restful sleep.
- The primary effects of Phenibut use include pain-reduction, promoting calmness and a feeling of well-being, reduction of stress and promotion of restful sleep at higher doses.
- The recommended dose of Phenibut is 500-1500mg per day, in two to three separate servings, depending on the desired effect.
- Mild side effects may include dizziness and lethargy with higher doses; and withdrawal symptoms are rare but can occur after prolonged use.

## Background

Phenibut, also known as  $\beta$ -Phenyl- $\gamma$ -aminobutyric acid or noofen, has been used significantly in Russia since the 1950s as a hypnotic supplement for treating anxiety and stress, for the promotion of feeling of well-being and to promote good sleep. GABA is the primary inhibitory neurotransmitter molecule in the brain, which enables us to process information, regulate our mood, and control our movements. The chemical structure of GABA is  $\text{NH}_2\text{CH}_2\text{CH}_2\text{COO}^-$  and its molecular weight is 147.15. GABA is synthesized in the brain by the enzyme GABA synthase (GABA-T, EC 2.3.1.17) and is broken down by the enzyme GABA aminotransferase (GABA-AT, EC 2.3.1.29). Phenibut (or fenbutal / phenibut) acts primarily as a GABA-B agonist and also plays a role in activating some GABA-A receptors and is noncompetitive in the two. It is used as a GABA agonist. It is important because it is not possible to supplement with GABA alone due to the chemical structure of the molecule. The primary GABA phenibut (note the name!) allows the chemical to cross the blood-brain barrier, while GABA itself cannot do this. It should be noted that other commonly used substances are not GABA agonists and these include alcohol as well as other commonly prescribed anti-anxiety and sleep-inducing drugs.

## Phenibut effects/benefits

GABA transmitters are found throughout the CNS and specifically in regions of the spinal cord that are known to be associated with pain. The GABA neurotransmitters are also found outside of the spinal cord and in areas of the CNS that are known to coordinate the response to and perception of pain. They are inhibitory molecules and are able to regulate the amount of information that reaches the CNS. In a very simplified explanation, GABA transmitters are able to modulate the perception of pain and since they are inhibitory, a greater concentration of GABA will inhibit the perception of pain to an extent. Since phenibut acts as a GABA agonist, it is also able to reduce pain to an extent, along with exerting other effects that include mood lift and euphoria associated with analgesics.<sup>1</sup>

It is important to remember the different GABA receptors and subtypes and that they all have different effects on the human body. While GABA-B agonists have a very strong potential to work as pain and anxiety relief, the problem is in dose and their being unselective in the different GABA-receptor groups. In most cases of third chemicals, when the dose is high enough to promote pain relief, those effects start setting in the evidence. This is because of interactions with other GABA receptor groups.

One benefit of Phenibut is that the dose can be altered according to what effect is desired. For simple anxiety relief, it is in dose and their being unselective in the different GABA-receptor groups. As explained before, GABA is an inhibitory molecule and is able to "turn our" information from the CNS. This is why it acts as a regulator for the perception of pain – it is able to stop pain modulation from entering our brain and allows us to only

feel the necessary amount of pain to react. Often when we lie awake at night we are thinking about a lot of things and feeling a lot of things in our bodies and are generally restless. Phenibut is able to block out these perceptions and act as a sedative to improve sleep.<sup>2</sup>

A lot of research has gone into the use of phenibut as a neuroprotective and it has been found to be able to protect the brain from stress, especially when the brain is deprived of oxygen. This can occur during drowning, injury or during extreme physical exertion and can result in overtraining.

Phenibut has also been found to have profound cardioprotective effects which include protecting the heart from injury.

<sup>1</sup>Scientists have concluded from these studies that Phenibut results in higher cardiac conduction rate/respiratory rate, higher O<sub>2</sub> receptor pressure during strenuous activity, and increased delivery of glucose phosphorylation.

## Phenibut recommended usage

The recommended dose of phenibut is 500-1500mg per day, in two to three separate servings. A lower dose should result in more of a mood lift, anxiety relief and euphoric effect whereas a higher dose is also more of a sedative and results in better sleep. It is not recommended to exceed the daily dose as overdoing is possible. Also take note that tolerance can build up through continuous use but it is still not recommended to exceed the daily recommended dose.

## Phenibut side effects and warnings

Phenibut is a sport substance with multiple calming and mood-enhancing effects and, as with all GABA agonists, it can have some side effects.

Most side effects can include gastrointestinal issues, dizziness, weakness, memory reduction and lethargy and these are common with the use of all GABA agonists.<sup>3</sup>

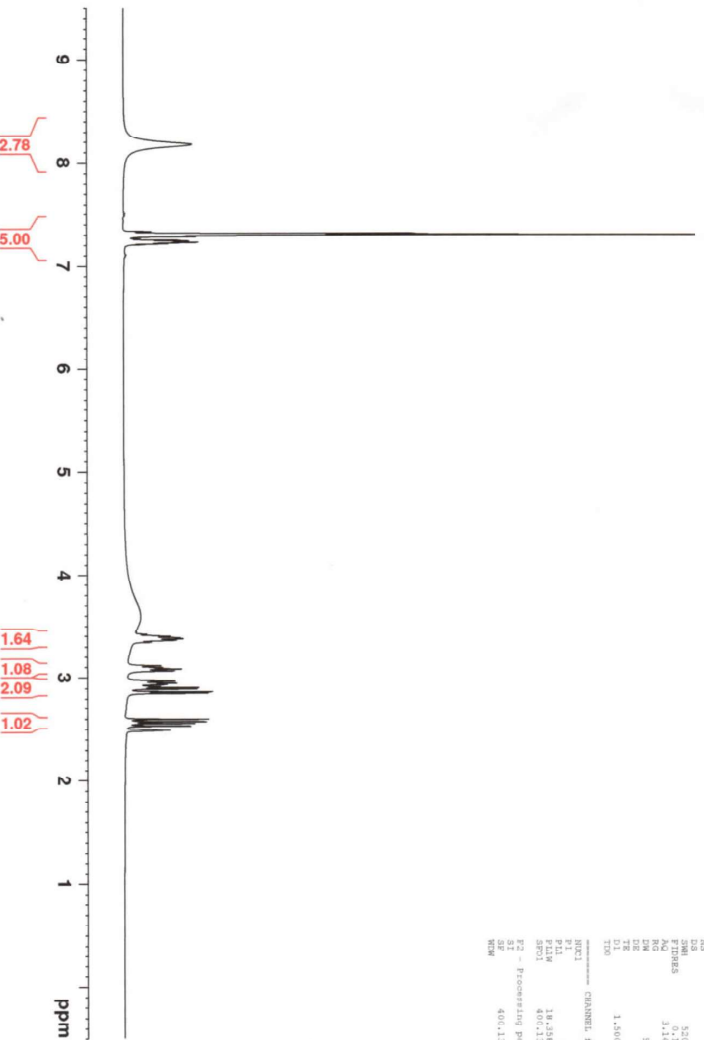
Withdrawal effects from phenibut use have also been reported on rare occasions. For this reason it is recommended to reduce dosage of phenibut before stopping entirely. Withdrawal effects can include negative thoughts, anxiety and irritability. There is a reported case of a 35-year-old man in Russia who became hospitalized for psychosis from withdrawal after long high-dose use of phenibut.<sup>4</sup> The man was doing at 20grams phenibut per day which is a huge dependent and creates massive risks of overdosing. The symptoms he experienced are not uncommon in alcohol dependent withdrawal as well as withdrawal from barbiturates, GHB, benzodiazepines which are also GABA agonists.

**Phenibut should NOT be taken with benzodiazepines or alcohol as it may result in respiratory depression that may lead to unconsciousness or even death!<sup>5</sup>**

## References

- <sup>1</sup>Phenibut is known as GABA-B agonist and mood lift. "Phenibut HCl". [www.chemedical.com](http://www.chemedical.com). Retrieved 2014-07-12.
- <sup>2</sup>The use of GABA-B agonists and protein synthesis. "Phenibut HCl". [www.chemedical.com](http://www.chemedical.com). Retrieved 2014-07-12.
- <sup>3</sup>Side effects from an excessive intake of phenibut. "Phenibut HCl". [www.chemedical.com](http://www.chemedical.com). Retrieved 2014-07-12.
- <sup>4</sup>Phenibut withdrawal. "Phenibut withdrawal". [www.chemedical.com](http://www.chemedical.com). Retrieved 2014-07-12.
- <sup>5</sup>Phenibut withdrawal. "Phenibut withdrawal". [www.chemedical.com](http://www.chemedical.com). Retrieved 2014-07-12.

## <sup>1</sup>H NMR of Phenibut HCl In DMSO Lot #9515 Colmaric Analytical 400 MHz 11-27-17



Customer: Data Processing  
EXPNO 1  
PROCNO 1  
P2 - Acquisition Parameters  
Date\_ 20171127  
Time 14:57  
PROBHD 5 mm BBOBO-1H  
PULPROG zgpg30  
PRGNAME zgpg30  
SOLVENT DMSO  
NS 32  
DS 4  
SWH 5208.433 Hz  
F2 100.626130 MHz  
AQ 0.0885  
RG 1.1837841 sec  
DE 96.33.0 uMsec  
TE 300.2 K  
D1 1.34600000 sec  
T10 1

===== CHANNEL f1 =====  
NUC1 13C  
P1 11.18 uMsec  
PL1 0 dB  
PL2 18.25600000 dB  
SFO1 400.1260000 MHz  
P2 - Processing parameters  
SI 32  
SF 400.1260000 MHz  
WDW EM  
SS 0