

Analytical Reference Standards

High Quality Noramco-qualified Standards



Highly characterized, highly purified standards

The United States Food and Drug Administration requires reference-standard materials to be of the highest quality, and thoroughly characterized, to assure identity, strength, and quality. Noramco offers well-characterized, highly purified analytical reference standards for routine analysis, method validation and development, commercial investigations, stability studies and other product development activities.

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Reference standard qualifications


Noramco utilizes various sophisticated spectroscopic techniques to characterize each reference standard. Overall purity, or "Purity Factor," is typically derived from 100% less the summation of inorganic, organic and solvent impurities.

Table 1. Typical Certificate of Analysis includes:

- 1.0 Appearance
- 2.0 Identification
- 3.0 Inorganic impurities
- 4.0 Organic impurities
- 5.0 Solvent impurities
- 6.0 Purity factor

All analytical reference standards include a signed certificate of analysis (CoA) and safety data sheet. The data within the CoA is based on information we believe to be highly accurate and reliable. Reference standards supplied by Noramco is intended only for analytical and research purposes and may not be used for human consumption.

For reference standards technical support, contact our R&D department.


1440 Olympic Drive
Athens, Georgia 30601
Phone 706-353-4400
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Certificate of Analysis
Certificate Number: 2016-SA-128


Material Name: Norbuprenorphine Hydrochloride
NDC #: 51634-1048-11
Reference Standard #: NQS1202
Date of Manufacture: March 2012
Requalification Date: December 31, 2019


Test	Limit	Result
Appearance	Report Results	Off-white powder
Infrared Spectroscopy ¹	Consistent With Structure	Complies
Mass Spectrometry ²	Consistent With Structure	Complies
Residue on Ignition (ROI)	Report Results	<0.05%
Karl Fischer (KF)	Report Results	0.35%
Residual Solvents (ROS)	Report Results	1.74%
Total Impurity by HPLC	Report Results	2.23%
Purity Factor ³	Report Results	95.7%

¹ See Figure 1
² See Figure 2
³ Purity Factor is derived from 100% less summation of ROI, KF, ROS and HPLC impurities (utilizing Noramco's internal methods). Values less than 0.05% are not included in the Purity Factor.

Storage Conditions: Store under ambient temperature and humidity conditions.
This material is not intended for sale for human consumption.

Prepared By: 
Analytical Scientist, or designee

Approved By: 
Analytical Services Supervisor, or designee

Authorized By: 
Quality Assurance, or designee

NORAMCO – CONFIDENTIAL
Certificate Number: 2016-SA-128
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Figure 1: Norbuprenorphine Hydrochloride (NQS1202) FT-IR Spectrum in ATR

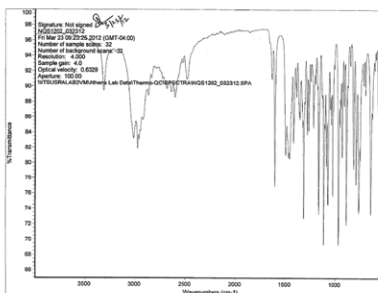
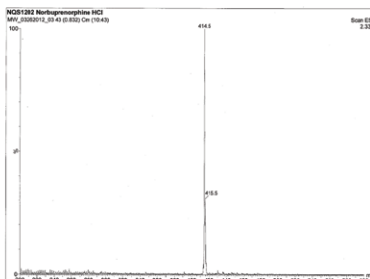


Figure 2: Norbuprenorphine Hydrochloride (NQS1202) MS Spectrum



Sample certificate
of analysis



Common Name	Other Names	CAS #	NDC#
Amphetamine Salts			
Amphetamine Aspartate (CII)		N/A	51634-2023-**
Amphetamine Formamide (NC)	N-formylamphetamine	22148-75-0	51634-2040-**
Amphetamine Impurity 251 (NC)		N/A	51634-2039-**
Amphetamine Sulfate (CII)		60-13-9	51634-2024-**
Dextroamphetamine Saccharate (CII)		350708-40-6	51634-2021-**
Dextroamphetamine Sulfate (CII)		51-63-8	51634-2022-**
Dextroamphetamine Sulfate, < 98% EE (CII)		51-63-8	51634-2022-**
Phenylacetone (CII)	USP Impurity B	103-79-7	51634-2026-**
Buprenorphine Base and Hydrochloride			
15,16-Dehydrobuprenorphine Base (CII)		61577-04-6	51634-1052-**
17,18-Dehydrobuprenorphine Base (CII)	EP Impurity J	155203-05-7	51634-1036-**
19,19' Ethenylbuprenorphine (CII)	EP Impurity F	97203-04-8	51634-2164-**
2,2'-Bisbuprenorphine Base (CII)	EP Impurity G	163597-04-4	51634-2119-**
3-Deshydroxybuprenorphine Base (CII)		N/A	51634-1037-**
3-O-Methylbuprenorphine Base (CII)	EP Impurity D	16524-65-5	51634-1044-**
3-O-Methyl-N-cyanonorbuprenorphine Base (CII)	EP Impurity C	16614-60-1	51634-1041-**
3-O-Methyl-N-methylnorbuprenorphine Base (CII)		16196-70-6	51634-1042-**
3-O-Methylnorbuprenorphine Base (CII)		16614-59-8	51634-1043-**
6-O-Desmethylbuprenorphine Base (CII)	EP Impurity E	130668-48-3	51634-1038-**
Buprenorphine Base (CIII)		52485-79-7	51634-1039-**
Buprenorphine Hydrochloride (CIII)		53152-21-9	51634-1040-**
Buprenorphine N-Oxide (CII)		112242-17-8	51634-1045-**
N-But-3-enylnorbuprenorphine Base (CII)	USP Compound A; EP Impurity A	457071-73-7	51634-1046-**
N-But-3-enylnormethylbuprenorphine Base (CII)	3-O-Methyl-N-(But-3-enyl) Norbuprenorphine Base (CII)	N/A	51634-2000-**
N-butylnorbuprenorphine (CII)	EP Impurity H	90387-35-2	51634-2101-**
N-Methylnorbuprenorphine Base (CII)		228550-34-3	51634-1047-**
Norbuprenorphine Hydrochloride (CII)	EP Impurity B	209963-02-0	51634-1048-**
Tetramethylfuran Buprenorphine (CII)	EP Impurity I; THF Buprenorphine	89663-73-0	51634-2125-**
7-S-Buprenorphine (CIII)	NEW 7-β-Buprenorphine	152610-73-6	51634-2227-**
10-keto-buprenorphine (CII)	NEW 10-oxo-buprenorphine	1044710-08-8	51634-2217-**
N-formyl buprenorphine (CII)	NEW	N/A	51634-2225-**



Common Name	Other Names	CAS #	NDC#
Cannabinoids			
Δ^9 -Tetrahydrocannabinol (THC)	NEW	1972-08-3	51634-2160-**
Δ^9 -Tetrahydrocannabinolic Acid (THCA)	NEW	23978-85-0	51634-2187-**
Cannabidiol (CBD)	NEW	13956-29-1	51634-2155-**
Cannabidiolic Acid (CBDA)	NEW	1244-58-2	51634-2184-**
Cannabichromene (CBC)	NEW	20675-51-8	51634-2180-**
Cannabichromenic Acid (CBCA)	NEW	185505-15-1	51634-2181-**
Δ^9 -Tetrahydrocannabivarin (THCV)	NEW	31262-37-0	51634-2167-**
Δ^9 -Tetrahydrocannabiarinic Acid (THCVA)	NEW	39986-26-0	51634-2188-**
Cannabidivarin (CBDV)	NEW	24274-48-4	51634-2166-**
Cannabidivarinic Acid (CBDVA)	NEW	31932-13-5	51634-2185-**
Cannabichromevarin (CBCV)	NEW	57130-04-8	51634-2182-**
Cannabichromevarinic Acid (CBCVA)	NEW	64898-02-8	51634-2183-**
Cannabigerol (CBG)	NEW	25654-31-3	TBD
Cannabigerolic Acid (CBGA)	NEW	25555-57-1	51634-2186-**
Δ^8 -Tetrahydrocannabinol	NEW	5957-75-5	51634-2161-**
Δ^9 -Tetrahydrocannabinol Naphthoylester	NEW	874200-77-8	51634-2199-**
Δ^8 -Tetrahydrocannabinol Naphthoylester	NEW	N/A	51634-2198-**
4-monobromo Cannabidiol	NEW	112639-10-8	TBD
Cannabicyclic Acid (CBLA)	NEW	40524-99-0	TBD
Exo-Tetrahydrocannabinol Naphthoylester	NEW	N/A	TBD
Cannabinol (CBN)	NEW	521-35-7	TBD
Δ^9 -Tetrahydrocannabinol (THC)-Methyl Analogue	NEW	172301-79-0	TBD
20% Δ^9 -Tetrahydrocannabinol in Ethanol (165mg/ml)	NEW	1972-08-3	51634-2189-**
20% Δ^8 -Tetrahydrocannabinol in Ethanol (165mg/ml)	NEW	5957-75-5	51634-2239-**
Codeine Phosphate			
10-Hydroxycodone Base (CII)		EP Impurity E	1777-89-5
14-Hydroxycodone Base (CII)		EP Impurity F	4829-46-3
a-Codeimethine Base (CII)			23950-06-3
Codeine Base (CII)			76-57-3
Codeine-6-methyl Ether Base (CII)		O-Methylcodeine; EP Impurity A	2859-16-7
Codeinone Base (CII)			467-13-0
Dimethylpseudomorphine Base (CII)		EP Impurity C	121395-47-9
Morphine Base (CII)		EP Impurity B	57-27-2
Norcodeine Base (CII)			467-15-2
Thebaine Alkaloid (CII)		EP Impurity G	115-37-7
Codeine-N-Oxide (CI)	NEW		3688-65-1
Hydrocodone Bitartrate			
10-Hydroxyhydrocodone Base (CII)			1004312-79-1
10-β-Hydroxyhydrocodone (CII)	NEW		184884-65-9
10-Ketohydrocodone Base (CII)			1273112-37-0
6-b-Tetrahydrothebaine Base (CII)		EP Impurity G	41714-53-8
8,14-dihydrothebaine (CII)		EP Impurity J	561-25-1

Common Name	Other Names	CAS #	NDC#
Codeine Base (CII)	EP Impurity C	76-57-3	51634-0009-**
Codeine-6-methyl Ether Base (CII)	O-Methylcodeine; EP Impurity F	2859-16-7	51634-0903-**
Codeinone Base (CII)	EP Impurity E	467-13-0	51634-0998-**
Dihydrocodeine Base (CII)	EP Impurity B, USP Impurity	125-28-0	51634-0088-**
Dihydrothebainone Base (CII)	USP Compound A	847-86-9	51634-0911-**
Hydrocodone Aldol Dimer (CII)	NEW	N/A	51634-2170-**
Hydrocodone Base (CII)		125-29-1	51634-0015-**
Hydrocodone Bitartrate (CII)		34195-34-1	51634-0104-**
Hydrocodone N-Oxide (CII)		909265-05-0	51634-1000-**
Hydromorphone Hydrochloride (CII)	EP Impurity K	71-68-1	51634-0057-**
Methylene Bridged Hydromorphone Dimer Base (CII)		N/A	51634-0933-**
Methylene Bridged Morphine Dimer Base (CII)		N/A	51634-0932-**
Morphine Base (CII)	EP Impurity A	57-27-2	51634-0018-**
Morphine Sulfate (CII)		64-31-3	51634-0017-**
Oxycodone Base (CII)	EP Impurity D	76-42-6	51634-0003-**
Oxycodone Hydrochloride (CII)		124-90-3	51634-0102-**
Pseudohydrocodone Base (CII)		N/A	51634-0915-**
Thebaine Alkaloid (CII)	EP Impurity I	115-37-7	51634-0006-**
Hydromorphone Hydrochloride			
6-b-Tetrahydrooripavine Base (CII)	USP Impurity	63732-74-1	51634-0990-**
8,14-Dihydrooripavine Base (CII)	USP Impurity	873087-79-7	51634-0083-**
8-Hydroxyhydromorphone (CII)	USP Impurity	339525-94-9	51634-0988-**
Dihydromorphone Base (CI)	USP Impurity, EP Impurity D	509-60-4	51634-0987-**
Hydromorphone Hydrochloride (CII)		71-68-1	51634-0057-**
Hydromorphone N-Oxide (CII)	EP Impurity B, USP Impurity	109648-80-8	51634-0991-**
Hydromorphone Aldol Dimer HCl (CII)		N/A	51634-2191-**
Morphine Base (CII)	EP Impurity C, USP Impurity	57-27-2	51634-0018-**
Morphinone Perchlorate (CII)	USP Compound A	91265-67-7	51634-1001-**
Norhydromorphone Base (CII)		14696-23-2	51634-0989-**
Pseudodihydrooripavine Base (CII)		N/A	51634-0993-**
Pseudohydromorphone Base (CII)	EP Impurity A, USP Impurity 2,2'-bishydromorphone	N/A	51634-0981-**
10-Ketohydromorphone	NEW	N/A	51634-2204-**
10-α-Hydroxyhydromorphone	NEW	N/A	51634-2202-**



Common Name	Other Names	CAS #	NDC#
Methylphenidate Hydrochloride			
Ethylphenidate Hydrochloride (NC)	USP Impurity, EP Impurity E	19716-79-1	51634-1054-**. **
Methylphenidate Hydrochloride (CII)		298-59-9	51634-0114-**. **
Methylphenidate Hydrochloride, erythro isomer (CII)	USP Impurity, EP Impurity B	23644-60-2	51634-2111-**. **
Ritalinic Acid (NC)	USP Compound A; EP Impurity A	19395-41-6	51634-1055-**. **
Dexmethylphenidate HCl (CII)	NEW	19262-68-1	51634-2112-**. **
Dexritalinic Acid (NC)	NEW	129389-67-9	
Morphine Sulfate			
10-Ketomorphine (CII)	NEW	68254-48-8	51634-1093-**. **
10- Hydroxymorphine (CII)	NEW	131563-73-0	51634-0939-**. **
14-hydroxymorphine Base (CII)		3371-56-0	51634-1088-**. **
Codeine Base (CII)	EP Impurity A	76-57-3	51634-0009-**. **
Morphine Base (CII)		57-27-2	51634-0018-**. **
Morphine N-Oxide (CI)	USP Compound A; EP Impurity F	639-46-3	51634-0907-**. **
Morphine Sulfate (CII)		64-31-3	51634-0017-**. **
Morphinone Perchlorate (CII)	EP Impurity E	91265-67-7	51634-1001-**. **
Oripavine Base (CII)	EP Impurity C	467-04-9	51634-0001-**. **
Pseudomorphine Base (CII)	USP Compound B; EP Impurity B 2,2'-bimorphine	125-24-6	51634-0902-**. **
Naloxone Base and Hydrochloride			
10-a-Hydroxynaloxone Base (CII)	EP Impurity C	2139253-68-0	51634-2009-**. **
10-b-Hydroxynaloxone Base (CII)	EP Impurity F	2139253-69-1	51634-2010-**. **
10-Ketonaloxone Base (CII)		294175-43-2	51634-2042-**. **
3-O-Methylnaloxone (CII)	EP Impurity G	70866-64-7	51634-2048-**. **
3-O-Allylnaloxone Hydrochloride (CII)	EP Impurity B	2139253-87-3	51634-2050-**. **
7,8-Didehydronaloxone Base (CII)	EP Impurity D	26451-92-3	51634-2043-**. **
Naloxone Base (NC)		465-65-6	51634-2017-**. **
Naloxone Dimer (CII)	EP Impurity E; 2,2'-bisnaloxone	211738-08-8	51634-2041-**. **
Naloxone Hydrochloride (NC)		357-08-4	51634-2018-**. **
Naloxone N-Oxide (CII)		112242-14-5	51634-2109-**. **





Common Name	Other Names	CAS #	NDC#
Noroxymorphone Base (CII)	EP Impurity A, USP Impurity	33522-95-1	51634-1022-**. **
Noroxymorphone Carbamate (CII)		144265-46-3	51634-2006-**. **
4-Hydroxy-7,8 didehydronaloxone HCl (CII)	NEW	N/A	516342233-**. **
N-Allyl-10-hydroxynorhydromorphone (CII)	NEW	Naloxone Impurity 3	51634-2222-**. **
6-alpha naloxol (CII)	NEW	20410-95-1	51634-2234-**. **
6-beta naloxol (CII)	NEW	53154-12-4	51634-2235-**. **
Naltrexone Base and Hydrochloride			
10-Hydroxynaltrexone Base (CII)		60767-82-0	51634-2052-**. **
10-Ketonaltrexone Base (CII)	EP Impurity I	96445-14-6	51634-2011-**. **
14-Hydroxy-17-cyclopropylmethylnormorphinone Base (CII)		123086-68-0	51634-2012-**. **
2,2'-Bisnaltrexone Base (CII)	EP Impurity D; Pseudonaltrexone	607732-61-6	51634-1061-**. **
3-(Cyclopropylmethyl) Naltrexone Base (CII)	EP Impurity E	767615-69-0	51634-1062-**. **
3-O-Methylnaltrexone Base (CII)	EP Impurity J	16617-07-5	51634-2104-**. **
8-Hydroxynaltrexone Base (CII)		N/A	51634-2007-**. **
N-(3-Butenyl)-noroxymorphone Base (CII)	USP Compound A; EP Impurity C	189016-90-8	51634-2013-**. **
Naltrexone Aldol Dimer Base (CII)		607732-61-6	51634-1063-**. **
Naltrexone Base (NC)		16590-41-3	51634-1060-**. **
Naltrexone Hydrochloride (NC)		16676-29-2	51634-1064-**. **
Noroxymorphone Base (CII)	EP Impurity B	33522-95-1	51634-1022-**. **
Noroxymorphone Carbamate (CII)		144265-46-3	51634-2006-**. **
Oxymorphone Base (CII)		76-41-5	51634-0913-**. **
Oxymorphone Hydrochloride (CII)		357-07-3	51634-0095-**. **
Oxycodone Hydrochloride			
10-Hydroxyoxycodone Base (CII)	USP Impurity	96453-12-2	51634-2005-**. **
10-Ketooxycodone Base (CII)		96445-11-3	51634-2126-**. **
14-Hydroxycodeinone Base (CII)	USP Compound A; EP Impurity D	508-54-3	51634-0906-**. **
7,8-Dihydro-14-hydroxycodeine Base (CII)	6-a-Oxycodol (USP); EP Impurity B	7183-69-9	51634-0920-**. **
7,8-Dihydro-8,14-dihydroxycodeinone Base (CII)	USP Impurity	23185-97-9	51634-0918-**. **
7-Methyloxycodone Base (CII)		2859-09-8	51634-1032-**. **
Codeinone Base (CII)	USP Compound C	467-13-0	51634-0998-**. **
Hydrocodone Base (CII)	EP Impurity E, USP Impurity	125-29-1	51634-0015-**. **
Noroxycodone Hydrochloride (CII)	EP Impurity C	52446-25-0	51634-1057-**. **
Noroxymorphone Base (CII)	USP Impurity	33522-95-1	51634-1022-**. **
Oxycodone Aldol Dimer (CII)	NEW	N/A	51634-2171-**. **
Oxycodone Base (CII)		76-42-6	51634-0003-**. **

Common Name	Other Names	CAS #	NDC#
Oxycodone Ethyl Enolate (CII)		100740-55-4	51634-0919-**
Oxycodone Hydrochloride (CII)		124-90-3	51634-0102-**
Oxycodone N-Oxide (CII)	USP Compound B	71539-52-1	51634-0908-**
Oxymorphone Base (CII)	EP Impurity A, USP Impurity	76-41-5	51634-0913-**
Oxymorphone Hydrochloride (CII)		357-07-3	51634-0095-**
Thebaine Alkaloid (CII)	EP Impurity F	115-37-7	51634-0006-**
Oxymorphone Hydrochloride			
10-Hydroxyoxymorphone Base (CII)		1801682-01-8	51634-2020-**
10-Ketooxymorphone Base (CII)		96445-15-7	51634-2019-**
14-a-Hydroxydihydromorphine Base (CI)		2183-56-4	51634-1053-**
14-Hydroxycodeinone Base (CII)		508-54-3	51634-0906-**
14-Hydroxymorphinone Base (CII)		41135-98-2	51634-1013-**
2,2'-Bisoxymorphone Base (CII)		1426174-64-2	51634-1028-**
4-Hydroxyoxymorphone Base (CII)		N/A	51634-2130-**
4-Hydroxyoxymorphone HCl (CII)	NEW	N/A	51634-2153-**
8-Hydroxyoxymorphone Base (CII)		109440-85-9	51634-1050-**
Hydromorphone Hydrochloride (CII)		71-68-1	51634-0057-**
Noroxymorphone Base (CII)		33522-95-1	51634-1022-**
Oxycodone Base (CII)		76-42-6	51634-0003-**
Oxycodone Hydrochloride (CII)		124-90-3	51634-0102-**
Oxymorphone Aldol Dimer (CII)	NEW	N/A	51634-2133-**
Oxymorphone Base (CII)		76-41-5	51634-0913-**
Oxymorphone Hydrochloride (CII)		357-07-3	51634-0095-**
Oxymorphone N-Oxide (CII)		71360-37-7	51634-1049-**
Pyran Bridged Oxymorphone Dimer (CII)		N/A	51634-1059-**
Miscellaneous			
Lisdexamfetamine Dimesylate (CII)	NEW	608137-33-3	51634-2058-**
Nabilone (CII)	NEW	51022-71-0	51634-2162-**

How to order analytical reference material

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