

Schedule II Opioids & Abuse Deterrent Technologies

Oxycodone	2 ADF Labels/1 ADF Label Pending/8 In Development	
OxyContin	Crush-resistant & gelling	Approved ADF label - Purdue
Targiniq ER	Naloxone antagonist	Approved ADF label - Purdue
Oxycodone/APAP	Physicochemical barrier	Awaiting approval – MNK
Oxycodone ER	Wax beads	Under development – Collegium
Oxycodone ER	Crush-resistant & gelling	Under development – Egalet
Oxycodone ER	Beads in tablet	Under development – TEVA
Oxycodone ER	Naltrexone antagonist	Under development - Pfizer
Oxycodone ER	Naltrexone antagonist	Under development - Elite
Remoxy	Gel capsule	Under development – Pain Therapeutics
Oxycodone ER	Crush-resistant & gelling	Under development – Inspirion
Oxycodone	Pro-drug	Under development – Signature Therap.
Hydrocodone	1 ADF Label Pending/1 Approved no ADF/4 In Development	
Hysingla ER	Crush-resistant & gelling	Approved ADF label - Purdue
Hydrocodone/APAP	Physicochemical barrier	Approved w/o ADF label – MNK
Hydrocodone ER	Crush-resistant & gelling	Under development – Egalet/Shionogi
Hydrocodone ER	Beads in tablet	Under development – TEVA
Zohydro ADF	Physicochemical barrier	Under development – Zogenix
Hydrocodone/APAP	Pro-drug	Under development – KemPharm
Morphine	1 ADF Label/3 In Development	
EMBEDA	Naltrexone antagonist	Approved w/ADF label - Pfizer
Morphine ER	Crush-resistant & gelling	Under development – Egalet
Morphine ER	Crush-resistant & gelling	Under development – Purdue
Morphine ER	Crush-resistant & gelling	Under development – Inspirion
Hydromorphone	1 Approved no ADF/2 In Development	
Exalgo	Hard shell	Approved w/o ADF label - MNK
Hydromorphone	Pro-drug	Under development – Signature Therap.
Hydromorphone	Pro-drug	Under development – KemPharm

Opioids on the market with No ADF (Includes all Generic C-IIs) in Development

<u>Name</u>	<u>Type</u>
Roxicodone	IR oxycodone and all its generic versions
MS Contin	ER Morphine BID and its generic versions; 500 million tablets annually
KADIAN/AVINZA	ER Morphine QD
Vicodin, Percocet	8 billion tablets annually
Dilaudid	IR hydromorphone and its generics
ZOHYDRO ER	ER hydrocodone
Ultram	Tramadol and generics
Subutex	Generic buprenorphine for addiction treatment and off-label in pain
Dolophine	Methadone and generics - used in addiction and off-label in pain
BUTRANS	Buprenorphine patch - brand only
DURAGESIC	Fentanyl patch and generics

Select Terms

APAP	Acetyl-Para-AminoPhenol (aka, Acetaminophen)
ER	Extended Release, long acting
IR	Immediate Release, short acting
BID	Twice a Day
TID	Three times Daily
QD	Every Day
Pro-Drug	Drug that must undergo metabolic conversion to activate
PC	Physical/Chemical Barrier
AA	Agonist/Antagonist
NTX	Naltrexone

Expected Timeline for ADF Product FDA Filing

(Based on Publically Available Information)

Timeframe	Product	Company	Type of ADF
Q4/2014	Hydro C/APAP	MKT	PC
Q4/2014	Hysingla ER	Purdue	PC
Q2/2015	Oxy M ER	Collegium	PC
Q2/2015	Hydro C ER	Teva	PC
Q2/2015	Oxy C ER	Collegium	PC
Q2/2015	Morph ER	Egalet	PC
Q2/2015	Oxy C/NTX ER	Pfizer	AA
Q3/2015	Eli – 200	Elite	AA
Q4/2015	Morph ER	Inspiron	PC
Q4/2015	Oxy C ER	Inspiron	PC
Q1/2016	Opana ER/ADF	Endo	PC
Q1/2016	Hydro C/APAP	KenPharm	Pro Drug
Q2/2016	Oxy C ER (Remoxy)	Pfizer	PC
Q2/2016	Oxy C/NTX ER	Elite	AA
Q4/2016	Hydro C ER	Egalet	PC
Q1/2017	MS Contin TRF	Purdue	PC
Q1/2017	Oxy C ER	Eaglet	PC
Q2/2017	Hydro M ER	Teva	PC
Q2/2017	Oxy C ER	Teva	PC
Q2/2017	Zohydro ER ADF	Zogenix	PC

Figure 1: Percent Reduction Profiles for E_{max} of Drug Liking VAS for OXYCONTIN vs. oxycodone HCl, N=27 Following Intranasal Administration

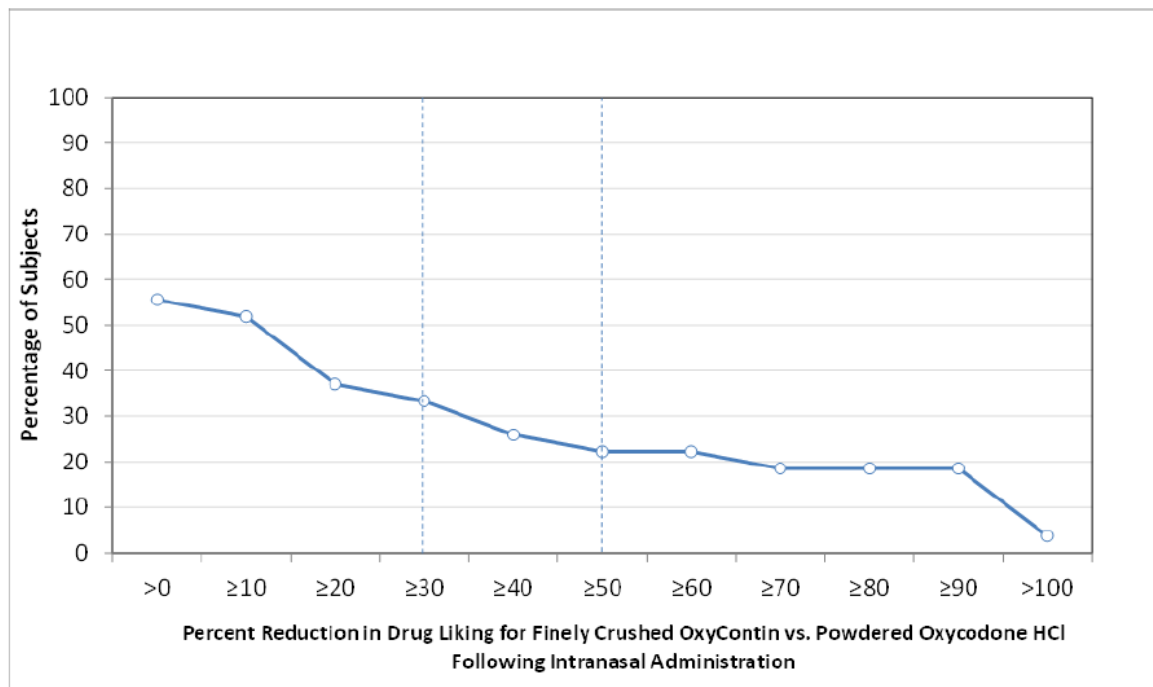


Figure 1 demonstrates a comparison of drug liking for finely crushed OXYCONTIN compared to powdered oxycodone HCl in subjects who received both treatments. The Y-axis represents the percent of subjects attaining a percent reduction in drug liking for OXYCONTIN vs. oxycodone HCl powder greater than or equal to the value on the X-axis. Approximately 44% (n = 12) had no reduction in liking with OXYCONTIN relative to oxycodone HCl. Approximately 56% (n = 15) of subjects had some reduction in drug liking with OXYCONTIN relative to oxycodone HCl. Thirty-three percent (n = 9) of subjects had a reduction of at least 30% in drug liking with OXYCONTIN compared to oxycodone HCl, and approximately 22% (n = 6) of subjects had a reduction of at least 50% in drug liking with OXYCONTIN compared to oxycodone HCl.