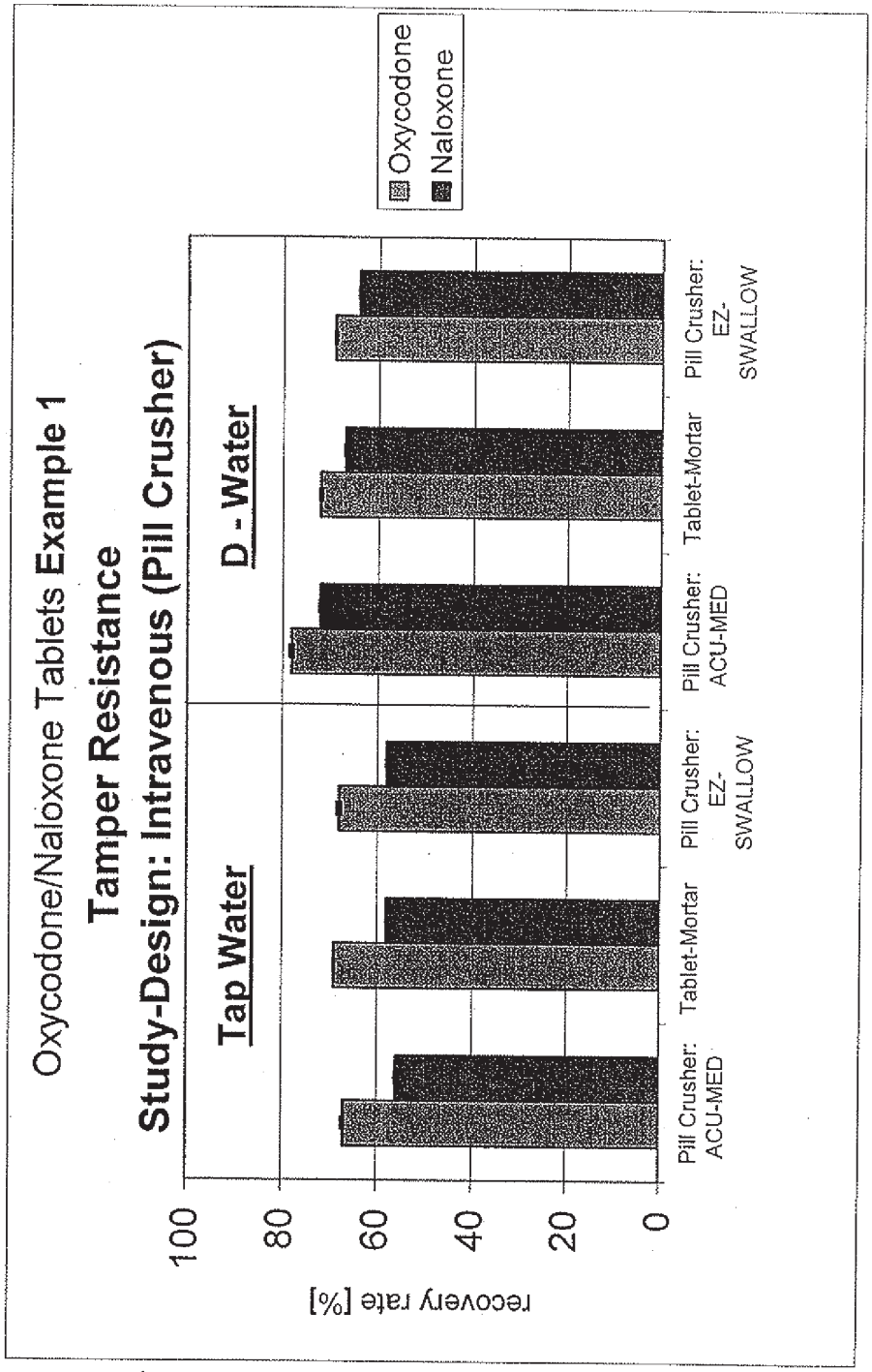

Oxycodone/Naloxone Tablets Example 1
Tamper Resistance
Study-Design: Intravenous (Pill Crusher)
Tap Water
D - Water
Oxycodone
Naloxone
recovery rate [%]
100
80
60
40
20
0
Pill Crusher: ACU-MED
Tablet-Mortar
Pill Crusher: EZ-SWALLOW
Pill Crusher: ACU-MED
Tablet-Mortar
Pill Crusher: EZ-SWALLOW

Fig. 1

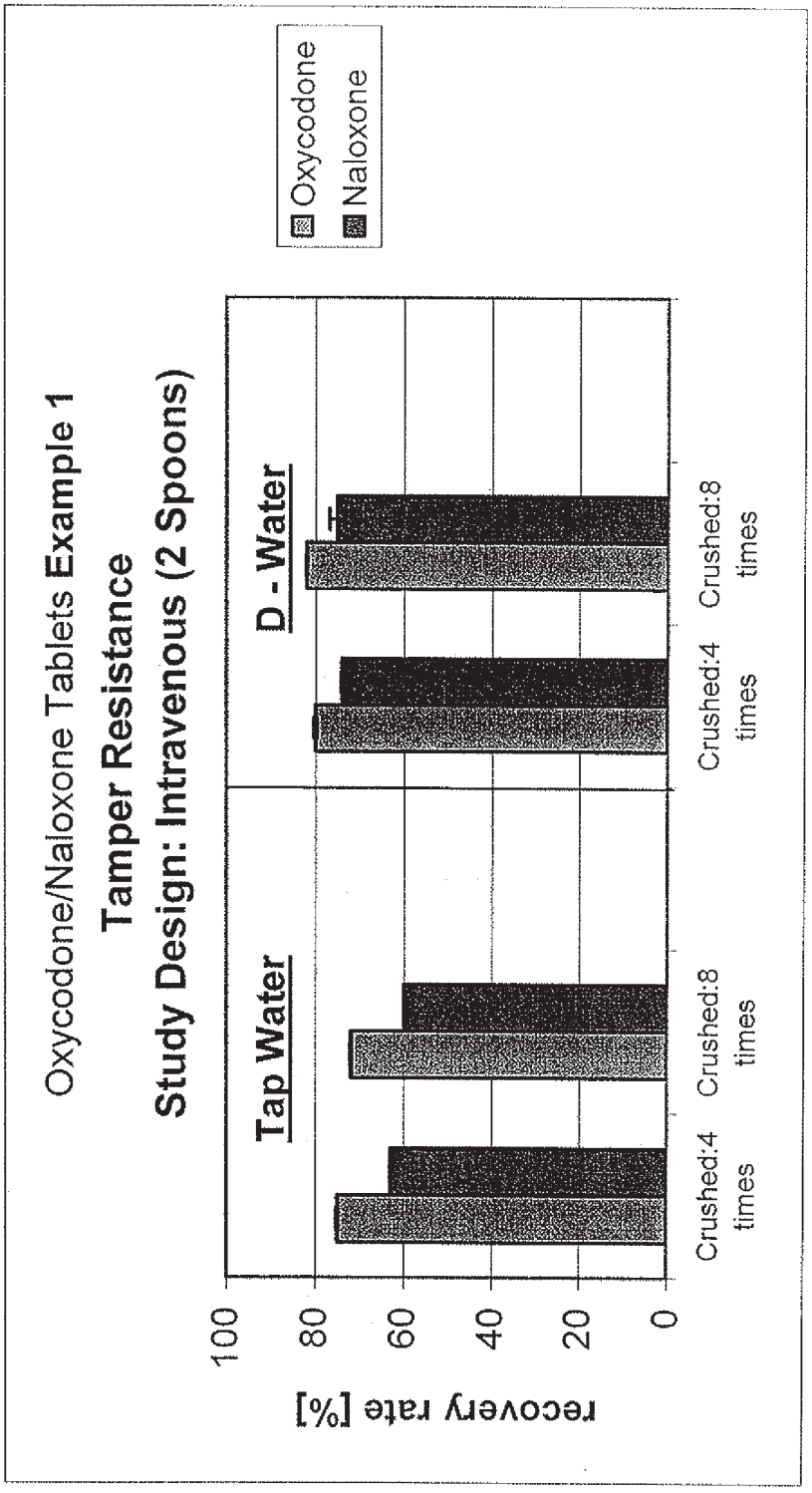

Oxycodone/Naloxone Tablets Example 1
Tamper Resistance
Study Design: Intravenous (2 Spoons)
Oxycodone
Naloxone
Tap Water
D - Water
recovery rate [%]
100
80
60
40
20
0
Crushed:4 times
Crushed:8 times
Crushed:4 times
Crushed:8 times

Fig. 2

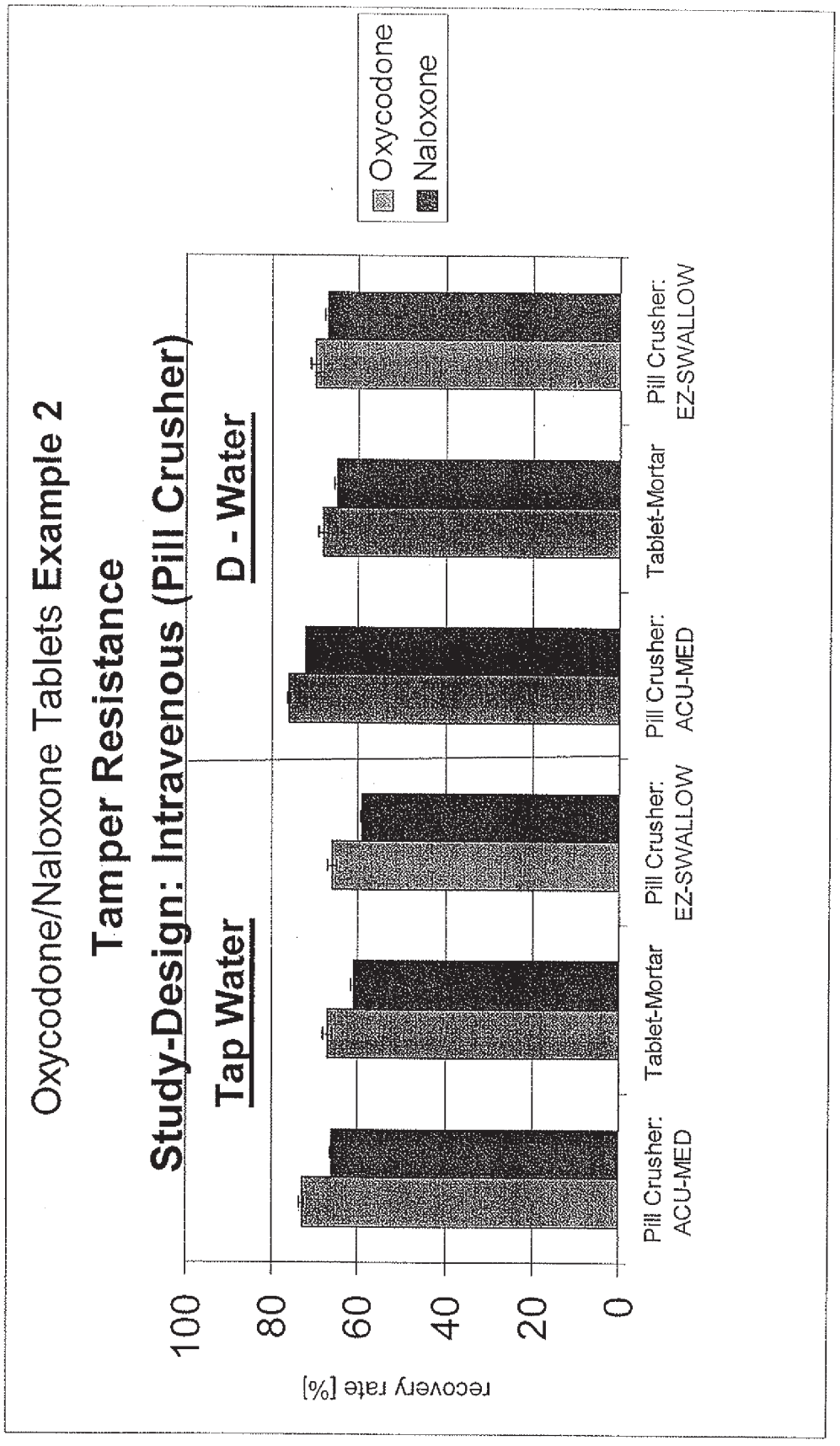

Oxycodone/Naloxone Tablets Example 2
Tamper Resistance
Study-Design: Intravenous (Pill Crusher)
Tap Water
D - Water
Oxycodone
Naloxone
recovery rate [%]
100
80
60
40
20
0
Pill Crusher: ACU-MED
Tablet-Mortar
Pill Crusher: EZ-SWALLOW
Pill Crusher: ACU-MED
Tablet-Mortar
Pill Crusher: EZ-SWALLOW

Fig. 3

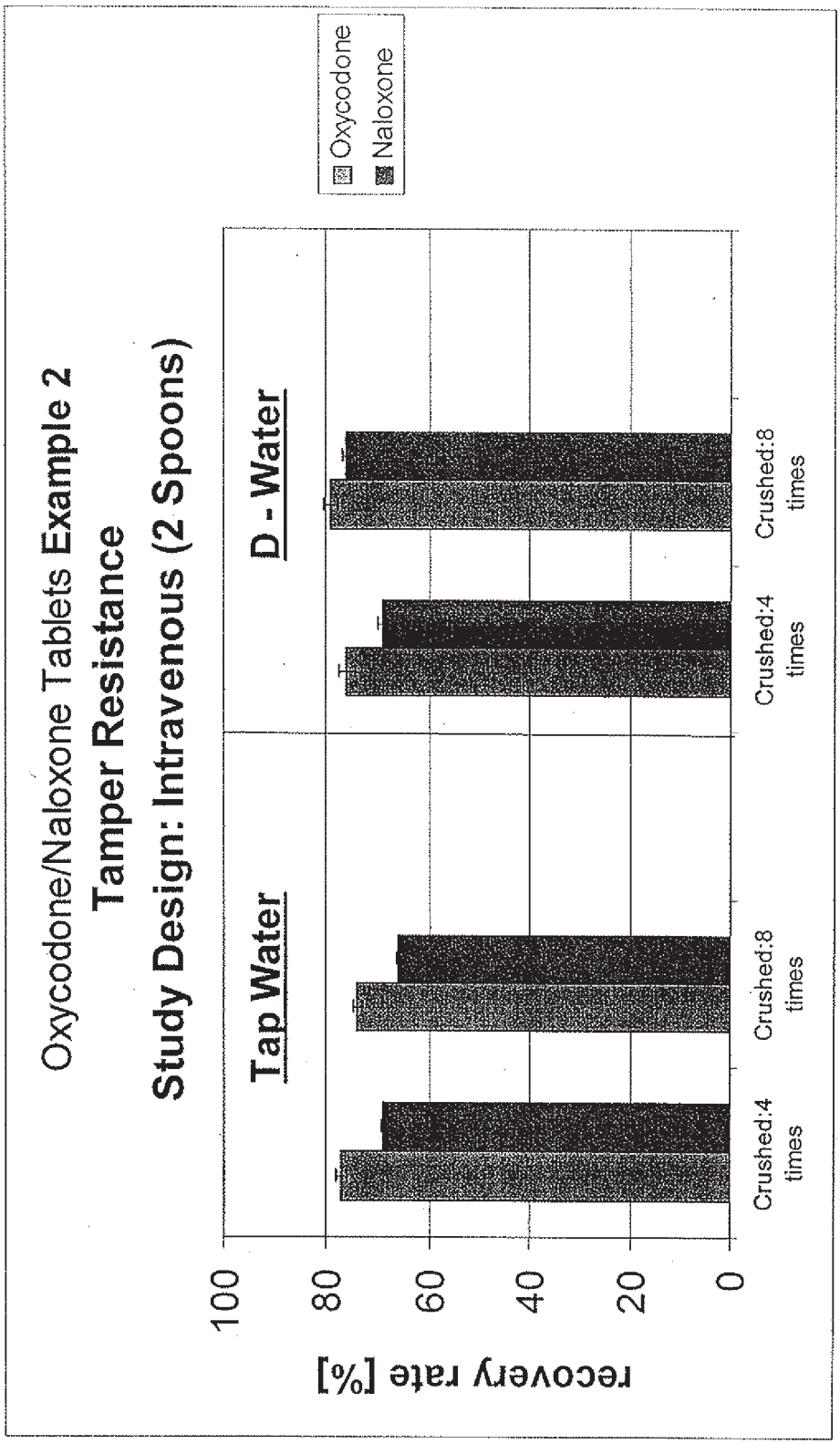

Oxycodone/Naloxone Tablets Example 2
Tamper Resistance
Study Design: Intravenous (2 Spoons)
Oxycodone
Naloxone
recovery rate [%]
100
80
60
40
20
0
Tap Water
D - Water
Crushed:4 times
Crushed:8 times
Crushed:4 times
Crushed:8 times

Fig. 4

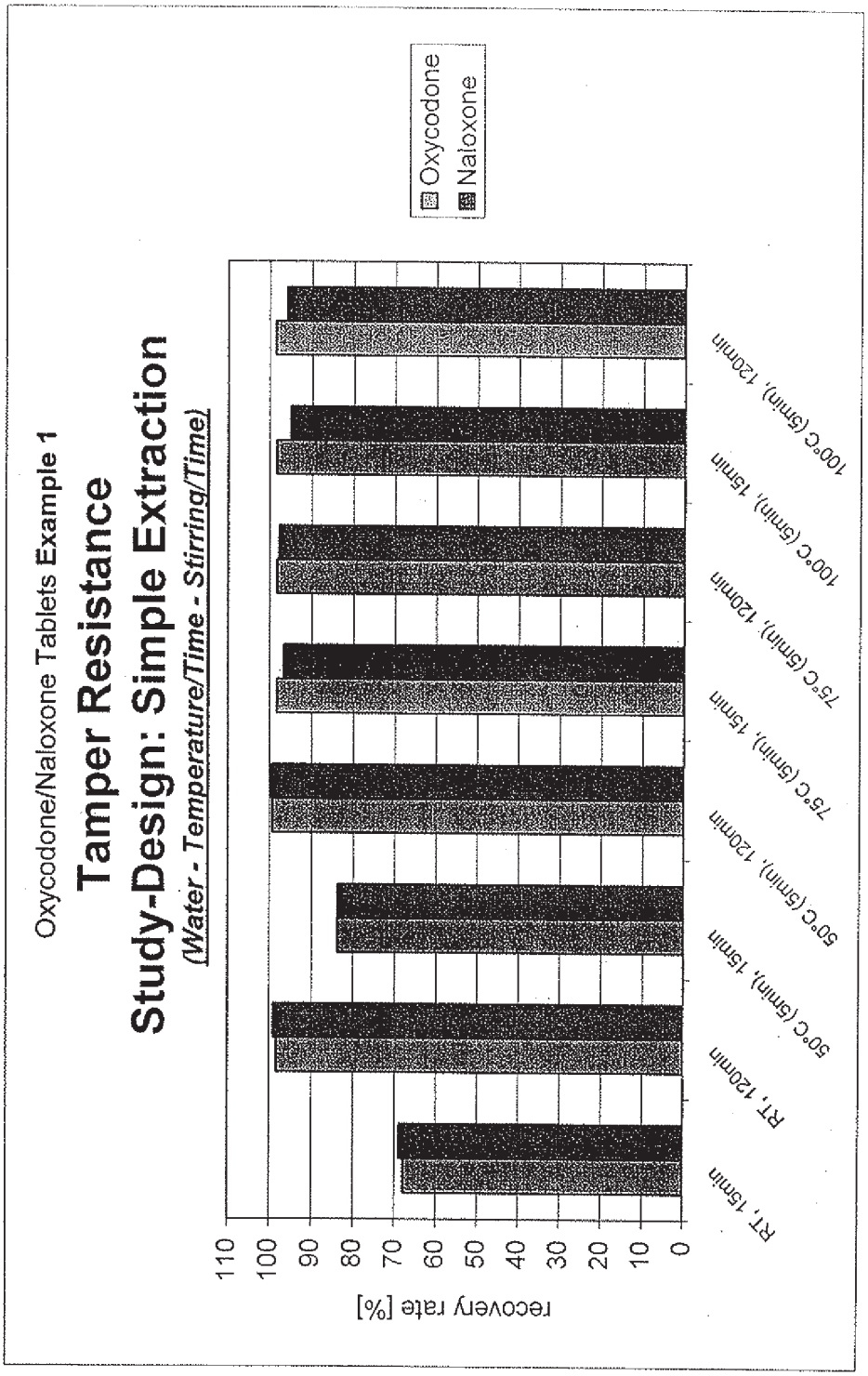

Oxycodone/Naloxone Tablets Example 1
Tamper Resistance
Study-Design: Simple Extraction
(Water - Temperature/Time - Stirring/Time)
Oxycodone
Naloxone
recovery rate [%]
110
100
90
80
70
60
50
40
30
20
10
0
RT, 15min
RT, 120min
50°C (5min), 15min
50°C (5min), 120min
75°C (5min), 15min
75°C (5min), 120min
100°C (5min), 15min
100°C (5min), 120min

Fig. 5

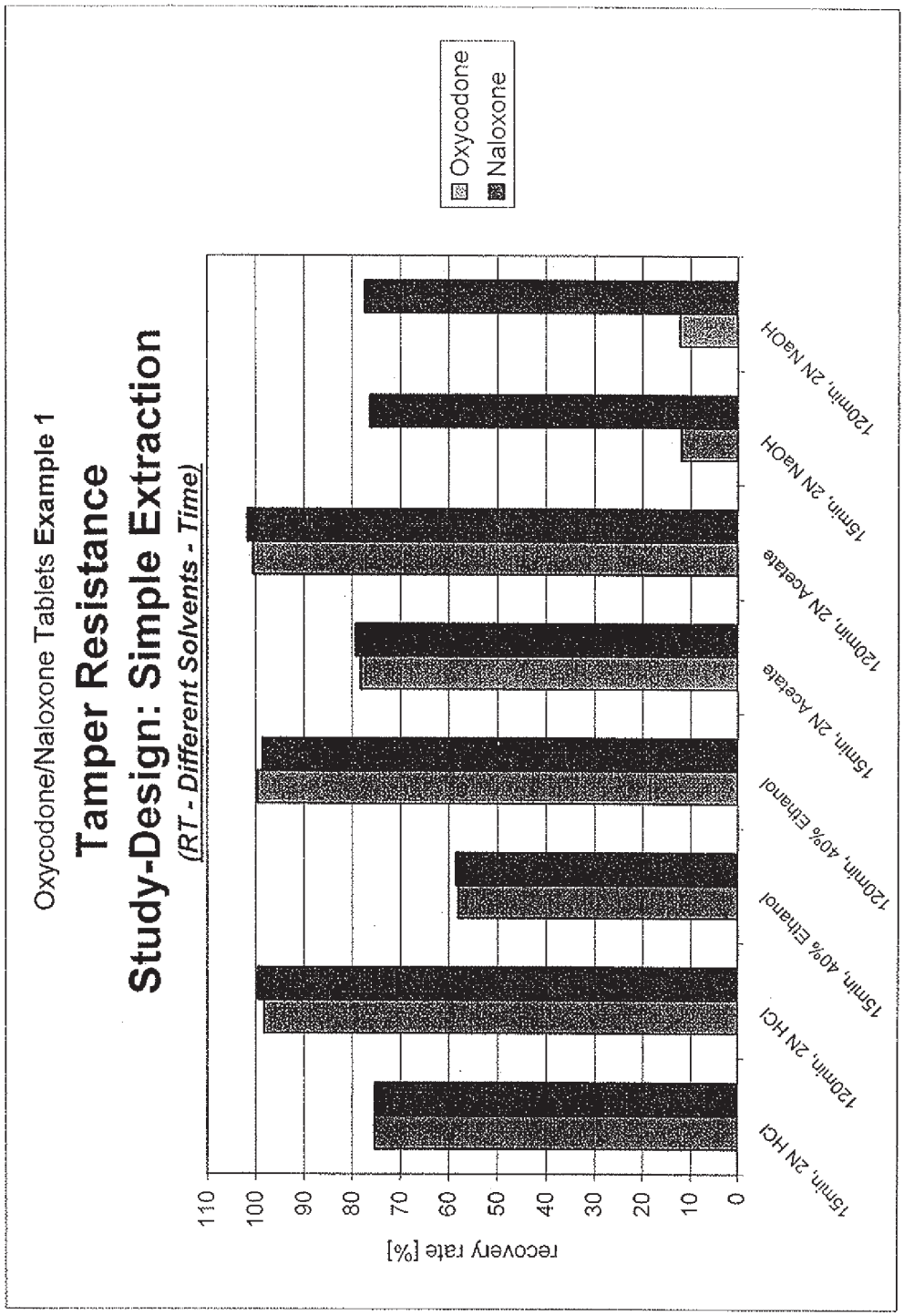

Oxycodone/Naloxone Tablets Example 1
Tamper Resistance
Study-Design: Simple Extraction
(RT - Different Solvents - Time)
Oxycodone
Naloxone
recovery rate [%]
110
100
90
80
70
60
50
40
30
20
10
0
15min, 2N HCl
120min, 2N HCl
15min, 40% Ethanol
120min, 40% Ethanol
15min, 2N Acetate
120min, 2N Acetate
15min, 2N NaOH
120min, 2N NaOH

Fig. 6

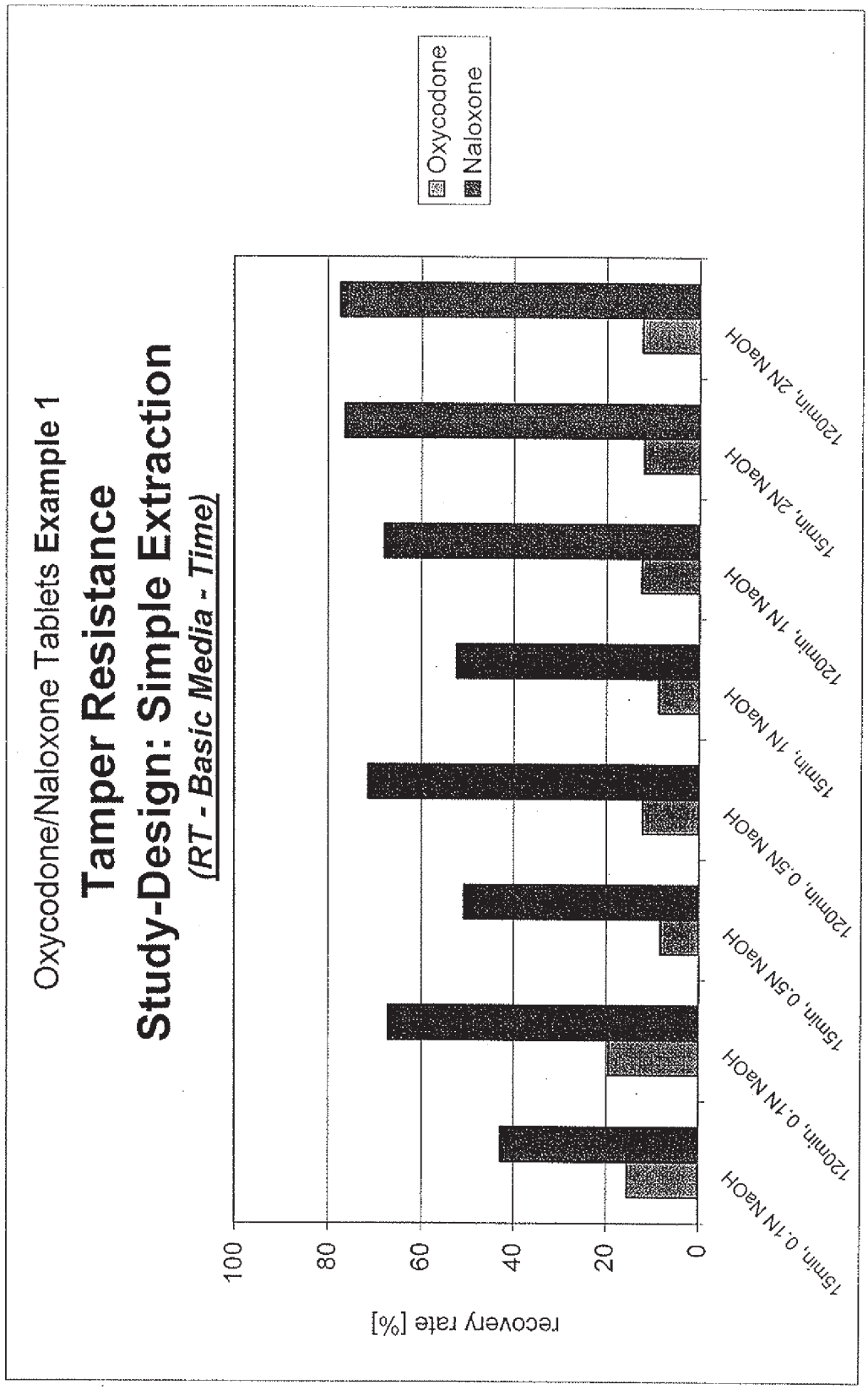

Oxycodone/Naloxone Tablets Example 1
Tamper Resistance
Study-Design: Simple Extraction
(RT - Basic Media - Time)
Oxycodone
Naloxone
recovery rate [%]
0
20
40
60
80
100
15min, 0,1N NaOH
120min, 0,1N NaOH
15min, 0,5N NaOH
120min, 0,5N NaOH
15min, 1N NaOH
120min, 1N NaOH
15min, 2N NaOH
120min, 2N NaOH

Fig. 7

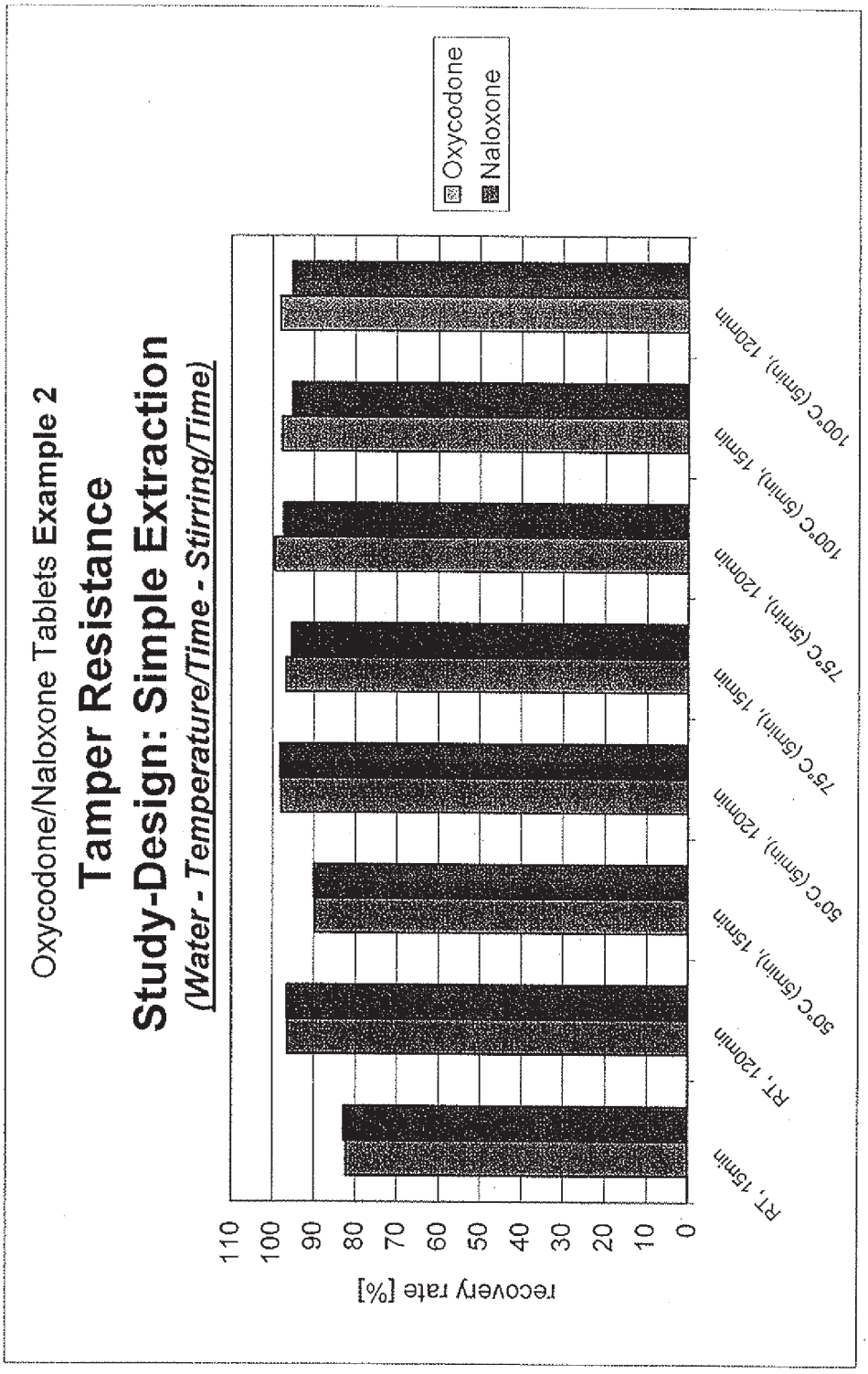

Oxycodone/Naloxone Tablets Example 2
Tamper Resistance
Study-Design: Simple Extraction
(Water - Temperature/Time - Stirring/Time)
Oxycodone
Naloxone
recovery rate [%]
110
100
90
80
70
60
50
40
30
20
10
0
RT, 15min
RT, 120min
50°C (5min), 15min
50°C (5min), 120min
75°C (5min), 15min
75°C (5min), 120min
100°C (5min), 15min
100°C (5min), 120min

Fig. 8

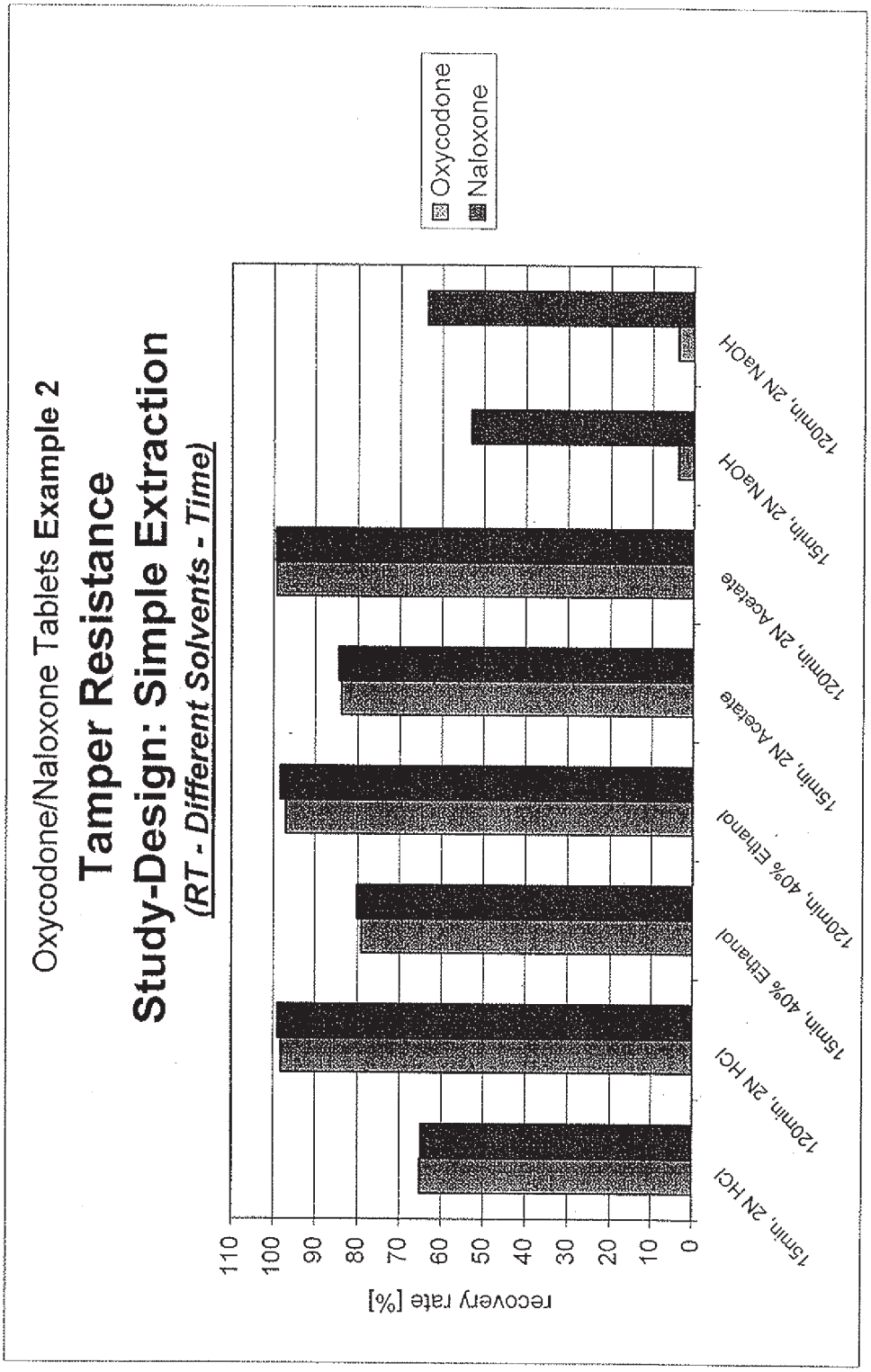

Oxycodone/Naloxone Tablets Example 2
Tamper Resistance
Study-Design: Simple Extraction
(RT - Different Solvents - Time)
Oxycodone
Naloxone
recovery rate [%]
0
10
20
30
40
50
60
70
80
90
100
110
15min, 2N HCl
120min, 2N HCl
15min, 40% Ethanol
120min, 40% Ethanol
15min, 2N Acetate
120min, 2N Acetate
15min, 2N NaOH
120min, 2N NaOH

Fig. 9

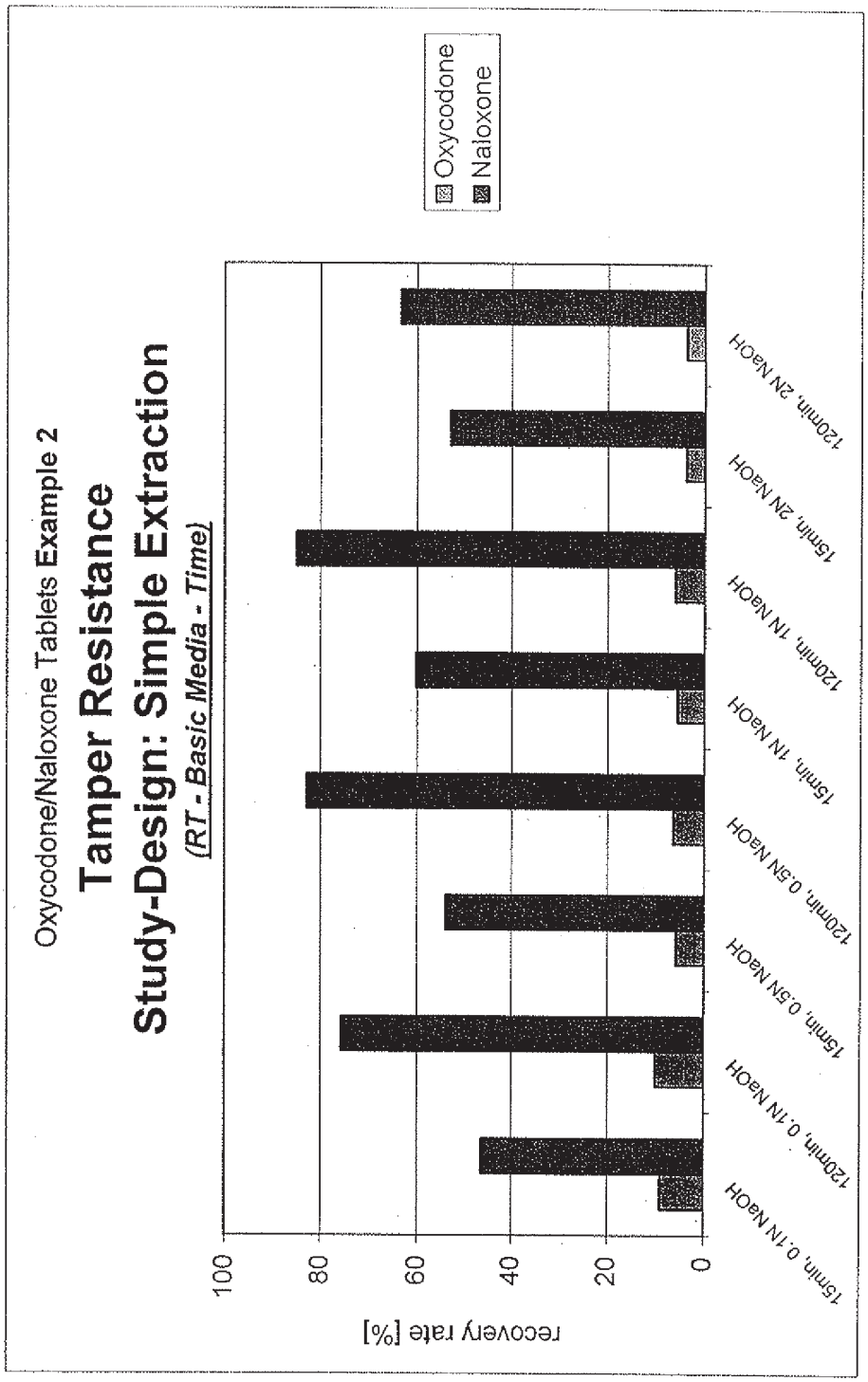

Oxycodone/Naloxone Tablets Example 2
Tamper Resistance
Study-Design: Simple Extraction
(RT - Basic Media - Time)
Oxycodone
Naloxone
recovery rate [%]
0
20
40
60
80
100
15min, 0.1N NaOH
120min, 0.1N NaOH
15min, 0.5N NaOH
120min, 0.5N NaOH
15min, 1N NaOH
120min, 1N NaOH
15min, 2N NaOH
120min, 2N NaOH

Fig. 10

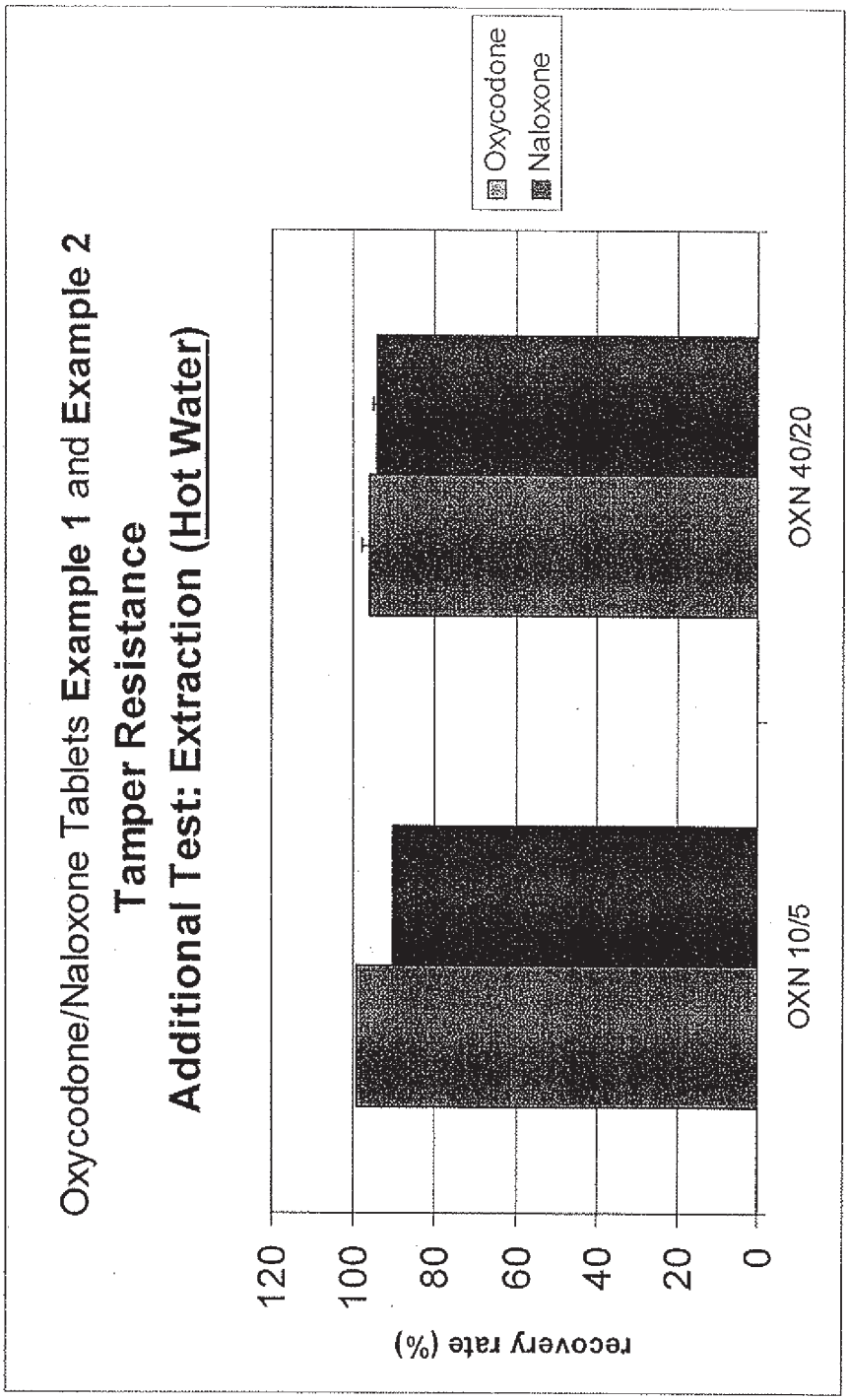

Oxycodone/Naloxone Tablets Example 1 and Example 2
Tamper Resistance
Additional Test: Extraction (Hot Water)
Oxycodone
Naloxone
recovery rate (%)
120
100
80
60
40
20
0
OXN 10/5
OXN 40/20

Fig. 11