

March 2024

**Thermo Scientific™ 1064Defender Raman Analyzer**  
**And**  
**Thermo Scientific™ Defender™ Omega Raman Analyzer**

Narcotics Library Version 2.1.1

RELEASE NOTES

We are pleased to announce the latest narcotics library release for the Thermo Scientific™ 1064Defender Raman Analyzer and Defender™ Omega Raman Analyzer, library version 2.1.1. This library release expands the library to include a total of 3,423 items.

Release date: March 11, 2024

Version: 2.1.1

Highlights include:

**1. Larger substance library**

208 additional items including illicit drugs and precursors, cutting agents, and pharmaceuticals were added to the 1064Defender library in all supported languages.

Specific additions include:

- 13 nitazenes
- 95 more fentanyl analogs plus 25 more precursors (norfentanyl)
- 40 additional illicit substances

See last page for complete list of additions.

For technical support please contact: [FSI-Product.Support@thermofisher.com](mailto:FSI-Product.Support@thermofisher.com).

**Thermo Scientific™ 1064Defender Raman Analyzer**

Software Version 2.1.1

LIBRARY ADDITIONS

- |   |  |
|---|--|
| 1. Potassium dichromate                           | 52. alpha-Methyl fentanyl hydrochloride                      |
| 2. Pyridine hydrochloride                         | 53. beta-Hydroxyfentanyl hydrochloride                       |
| 3. N-Methylformamide                              | 54. Thiofentanyl hydrochloride                               |
| 4. Propionyl chloride                             | 55. Ethoxyacetyl fentanyl hydrochloride                      |
| 5. (+)-Pseudoephedrine hydrochloride              | 56. Cyclopentyl fentanyl hydrochloride (Lot B)               |
| 6. Ammonium formate                               | 57. para-Methyl butyrylfentanyl hydrochloride                |
| 7. 1,1'-Carbonyldiimidazole                       | 58. ortho-Methylfentanyl hydrochloride                       |
| 8. (2-Bromoethyl)benzene                          | 59. para-Methoxy acrylfentanyl hydrochloride (Lot B)         |
| 9. 4'-Chloropropiophenone                         | 60. Benzyl fentanyl hydrochloride (Lot B)                    |
| 10. 1-Benzyl-4-piperidone                         | 61. N-Benzyl para-fluoro norfentanyl hydrochloride (Lot B)   |
| 11. Valerophenone                                 | 62. Norcarfentanil hydrochloride hydrate                     |
| 12. 4'-Methylpropiofenone                         | 63. 4'-Methyl isobutyryl fentanyl                            |
| 13. Mercury(II) chloride                          | 64. β'-Phenyl fentanyl hydrochloride                         |
| 14. 4-Piperidone hydrate hydrochloride            | 65. Heptanoyl fentanyl hydrochloride                         |
| 15. Butyrophenone                                 | 66. Thiophene fentanyl hydrochloride (Lot B)                 |
| 16. (2-Chloroethyl)benzene                        | 67. Chloroacetyl fentanyl hydrochloride                      |
| 17. Methyl thioglycolate                          | 68. Phenyl fentanyl hydrochloride (Lot B)                    |
| 18. 4'-Bromopropiophenone                         | 69. Cyclobutyl fentanyl hydrochloride (Lot B)                |
| 19. Pyridine hydrobromide                         | 70. 2-Fluorophenyl fentanyl hydrochloride                    |
| 20. N-Benzyl-N-propylamine                        | 71. 3-Fluorophenyl fentanyl hydrochloride                    |
| 21. Hydroxylimine hydrochloride                   | 72. Isovaleryl fentanyl hydrochloride                        |
| 22. Benzylamine hydrochloride                     | 73. 2-Chlorophenyl fentanyl hydrochloride                    |
| 23. Sodium triacetoxylborohydride                 | 74. 4-Fluorophenyl fentanyl hydrochloride                    |
| 24. 1-(Ethoxycarbonyl)-4-piperidone (Lot B)       | 75. para-Fluoro acetylfentanyl hydrochloride                 |
| 25. Amphetamine (Distilled base)                  | 76. para-Fluoro tetrahydrofuran fentanyl                     |
| 26. DL-Ornithine hydrochloride                    | 77. para-Fluoro phenyl fentanyl hydrochloride                |
| 27. Choline bitartrate                            | 78. para-Fluoro thiophene fentanyl hydrochloride             |
| 28. Deschloroetizolam                             | 79. para-Fluoro furanyl fentanyl hydrochloride hydrate       |
| 29. Ketazolam                                     | 80. para-Fluoro cyclopentyl fentanyl                         |
| 30. 1-Naphthyl U-47700                            | 81. para-Fluoro valeryl fentanyl hydrochloride               |
| 31. Muscimol                                      | 82. ortho-Fluorofentanyl hydrochloride (Lot B)               |
| 32. CUMYL-PeGACLONE                               | 83. ortho-Fluoro acrylfentanyl hydrochloride                 |
| 33. MYCP (Ditetradecyl peroxydicarbonate)         | 84. ortho-Fluoro acetylfentanyl hydrochloride                |
| 34. MYCP (Lot B) (Ditetradecyl peroxydicarbonate) | 85. meta-Fluorofentanyl hydrochloride (Lot B)                |
| 35. MYCP (Lot C) (Ditetradecyl peroxydicarbonate) | 86. meta-Fluoro methoxyacetyl fentanyl hydrochloride (Lot B) |
| 36. N-Pyrrolidino etonitazene                     | 87. meta-Fluoro isobutyryl fentanyl hydrochloride (Lot B)    |
| 37. 5-Fluoro EDMB-PICA                            | 88. meta-Fluoro acetylfentanyl hydrochloride                 |
| 38. 4-Fluoro MDMA-BUTICA                          | 89. meta-Fluoro furanylfentanyl hydrochloride                |
| 39. 4-Fluoro ABUTINACA                            | 90. meta-Fluoro phenylfentanyl hydrochloride                 |
| 40. Protonitazene hydrochloride                   | 91. para-Chlorofentanyl hydrochloride (Lot B)                |
| 41. Butonitazene                                  | 92. para-Chlorobutyryl fentanyl hydrochloride                |
| 42. Flunitazene hydrochloride                     | 93. para-Chloro furanylfentanyl hydrochloride                |
| 43. Isotodesnitazene citrate                      | 94. para-Chloro methoxyacetylfentanyl hydrochloride          |
| 44. Metodesnitazene hydrochloride                 | 95. para-Chloro thiophenefentanyl hydrochloride              |
| 45. 5-Fluoro BZO-POXIZID                          | 96. para-Chloro phenylfentanyl hydrochloride                 |
| 46. ADB-FUBIATA                                   | 97. para-Chloro cyclopropyl fentanyl hydrochloride           |
| 47. BZO-CHMOXIZID                                 | 98. para-Chloro acetylfentanyl hydrochloride                 |
| 48. ADB-PHETINACA                                 |  |
| 49. N-Piperidinyl etonitazene citrate             |  |
| 50. Fluclozotolam                                 |  |
| 51. Cannabidiol (CBD)                             |  |

99. para-Methylfentanyl hydrochloride
100. para-Methyl 4-fluorophenyl fentanyl hydrochloride
101. para-Methyl cyclopentyl fentanyl hydrochloride hemihydrate
102. para-Methyl cyclohexyl fentanyl hydrochloride hemihydrate
103. para-Methyl tert-butyl fentanyl hydrochloride hemihydrate
104. para-Methyl cyclopropyl fentanyl hydrochloride (Lot B)
105. para-Methyl methoxyacetyl fentanyl hydrochloride
106. para-Methyl thiophene fentanyl hydrochloride hemihydrate
107. para-Methyl furanyl fentanyl hydrochloride hemihydrate
108. para-Methyl phenyl fentanyl hydrochloride hemihydrate
109. para-Methyl ethoxyacetyl fentanyl
110. para-Methyl tetrahydrofuran fentanyl hydrochloride
111. para-Methyl 4-chlorophenyl fentanyl hydrochloride
112. ortho-Methyl furanyl fentanyl hydrochloride (Lot B)
113. ortho-Methyl cyclohexyl fentanyl hydrochloride
114. ortho-Methyl butyrylfentanyl hydrochloride
115. ortho-Methyl phenylfentanyl hydrochloride
116. ortho-Methyl 4-fluorophenyl fentanyl hydrochloride
117. ortho-Methyl thiophene fentanyl hydrochloride
118. ortho-Methyl cyclopentyl fentanyl hydrochloride
119. alpha-Methyl phenyl fentanyl hydrochloride
120. alpha-Methyl hexanoyl fentanyl hydrochloride
121. para-Methoxy tetrahydrofuran fentanyl
122. para-Methoxy isobutyryl fentanyl hydrochloride hemihydrate
123. para-Methoxy methoxyacetyl fentanyl hydrochloride
124. para-Methoxy hexanoyl fentanyl hydrochloride
125. Thioacetyl fentanyl hydrochloride
126. N-Benzyl acetyl norfentanyl hydrochloride hemihydrate
127. N-Benzyl butyryl norfentanyl hydrochloride
128. N-Benzyl 4-Chlorophenyl norfentanyl hydrochloride
129. N-Benzyl cyclopropyl norfentanyl hydrochloride
130. N-Benzyl cyclopentyl norfentanyl hydrochloride
131. N-Benzyl valeryl norfentanyl hydrochloride
132. N-Benzyl hexanoyl norfentanyl hydrochloride
133. N-Benzyl para-fluoro cyclopentanyl norfentanyl hydrochloride
134. N-Benzyl para-fluoro cyclohexanyl norfentanyl hydrochloride
135. N-Benzyl para-fluoro furanyl norfentanyl hydrochloride
136. N-Benzyl para-fluoro 3-fluoro-phenyl norfentanyl hydrochloride
137. N-Benzyl para-fluoro acetyl norfentanyl hydrochloride
138. N-Benzyl para-fluoro thiophene norfentanyl hydrochloride
139. N-Benzyl para-fluoro methoxyacetyl norfentanyl hydrochloride
140. N-Benzyl para-fluoro isobutyryl norfentanyl hydrochloride
141. N-Benzyl para-fluoro butyryl norfentanyl hydrochloride
142. N-Benzyl para-Fluoro 4-chlorophenyl norfentanyl hydrochloride
143. N-Methyl phenyl norfentanyl
144. N-Methyl 4-chlorophenyl norfentanyl
145. N-Methyl 2-fluorophenyl norfentanyl
146. 4'-Methyl-phenyl fentanyl hydrochloride
147. 4'-Methyl fentanyl hydrochloride
148. 4'-Methyl-isovaleryl fentanyl hydrochloride
149. 4'-Methyl butyrylfentanyl hydrochloride
150. N-Cyclopropanoylcyclopropylfentanyl
151. para-Fluorofentanyl hydrochloride (Lot B)
152. 4'-Methyl 4-chlorophenyl fentanyl hydrochloride
153. 4'-Methyl-thiophene fentanyl hydrochloride hydrate
154. 4'-Nitro fentanyl
155. alpha-Methyl valeryl fentanyl hydrochloride
156. N-Benzyl isobutyryl norfentanyl hydrochloride
157. 4'-Methyl cyclohexyl fentanyl hydrochloride
158. 4'-Chloro fentanyl hydrochloride
159. 4'-Methyl methoxyacetyl fentanyl hydrochloride
160. 4'-Methyl acetyl fentanyl hydrochloride (Lot B)
161. ortho-Methoxy butyryl fentanyl hydrochloride
162. ortho-Methoxy valeryl fentanyl hydrochloride
163. beta-Hydroxy isobutyryl fentanyl
164. beta-Hydroxy valeryl fentanyl hydrochloride
165. 3-Methylthiofentanyl
166. a-Methyl butyryl fentanyl hydrochloride
167. beta-Hydroxy 3-methyl butyryl fentanyl
168. 3-Methyl butyryl thiofentanyl hydrochloride
169. N-Benzyl furanyl norfentanyl hydrochloride (Lot B)
170. Chlorphine
171. Fluorphine
172. Meclonazepam
173. 4-Trifluoromethyl U-47700 hydrochloride
174. BZO-4en-POXIZID
175. BZO-POXIZID
176. N-boc Norketamine
177. Zopiclone
178. Tapentadol hydrochloride
179. iso-Butonitazene citrate
180. sec-Butonitazene citrate
181. Desalkylgidazepam
182. N-Propyl butylone hydrochloride
183. beta-Hydroxy 2C-B hydrochloride
184. 4-Anilinopiperidine hydrochloride
185. N-Phenylpiperidine-4-amine

- 186. Metamizole sodium
- 187. N-Desethyl isotonitazane hydrochloride
- 188. 8-Aminoclonazepam
- 189. 4'-Chloro deschloroalprazolam
- 190. Phenazepam
- 191. N-Pyrrolidino protonitazene
- 192. N-Pyrrolidino metonitazene citrate
- 193. AP-238 hydrochloride
- 194. Fluorexetamine hydrochloride
- 195. N-Cyclohexyl butylone hydrochloride
- 196. Ethyleneoxynitazene citrate
- 197. Methoxmetamine hydrochloride
- 198. Bromazepam
- 199. N-Pyrrolidino Etodesnitazene citrate
- 200. para-Fluoro norfentanyl
- 201. N-boc Norfentanyl
- 202. Medetomidine hydrochloride
- 203. Acepromazine maleate
- 204. Naltrexone hydrochloride
- 205. Tropicamide
- 206. trans 3-Methyl fentanyl hydrochloride
- 207. Morphine
- 208. Carfentanil citrate