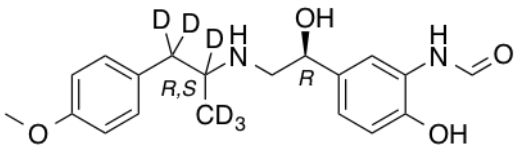
# Certificate of Analysis




| | |
|---|---|
| **Name:** | **Formoterol-D6 (mixture of diastereomers)** |
| **Lot#:** | GR-10-045 |
| **Test Date:** | 03/24/2022 (re-test date: 03/24/2027) |
| **CAS No.:** | 1020719-45-2 |
| **MF:** | $C_{19}H_{18}D_6N_2O_6$ |
| **MW:** | 350.44 |
| **Appearance:** | Beige solid |
| **Purity:** | 96.4% by HPLC; >98% atom D |
| **$^1$H-NMR:** | Conforms |
| **MS-ESI (+)** | Conforms (shows peak at m/z = 350.9 $[M+H]^+$) |
| **Storage** | Store at -18°C in a dry place away from direct sunlight |
| **Transportation** | **-25°C to +25°C** |

Approved by:

Date: 03/24/2022

Viorica Rusu, QC/QA Manager

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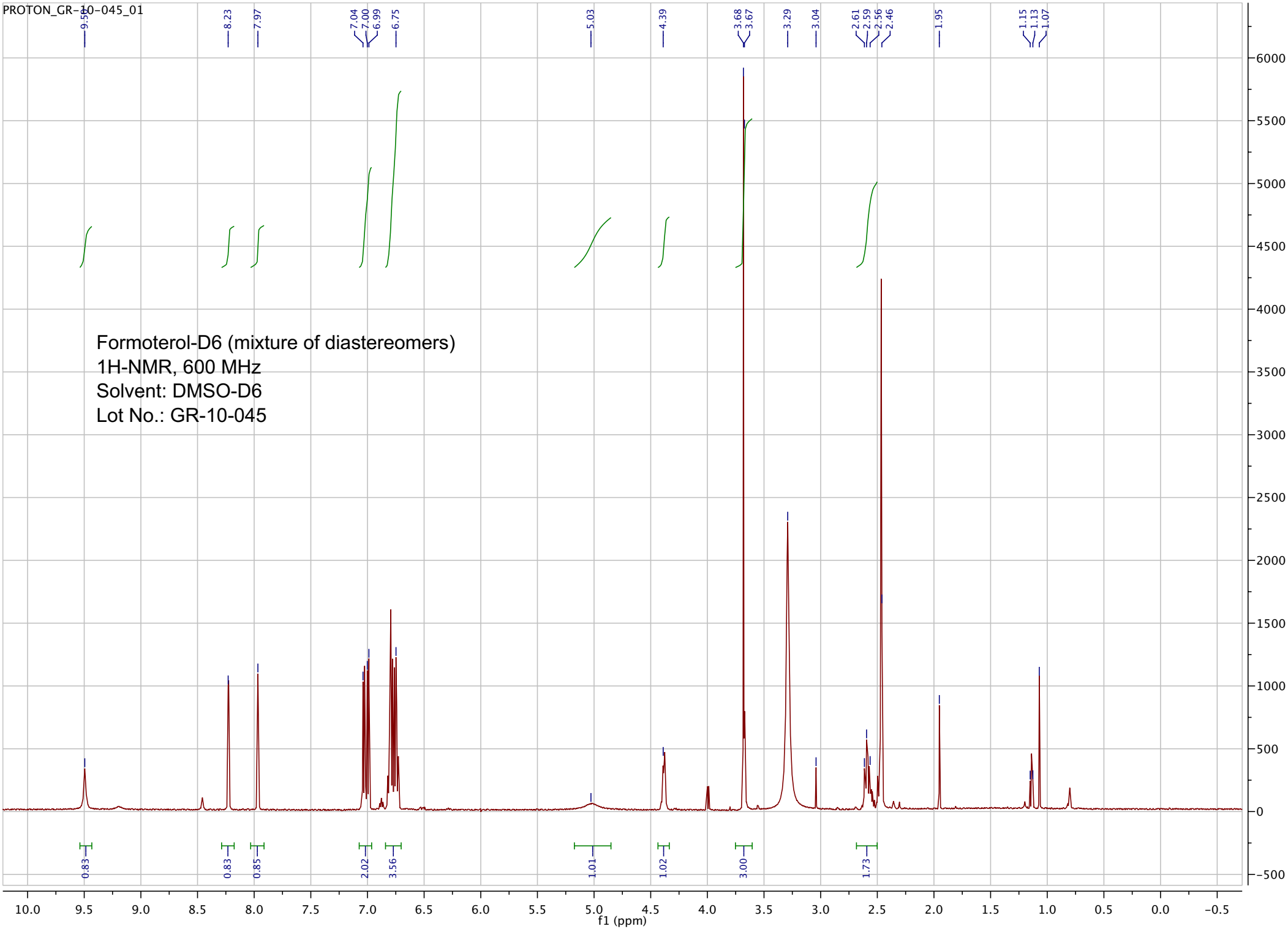
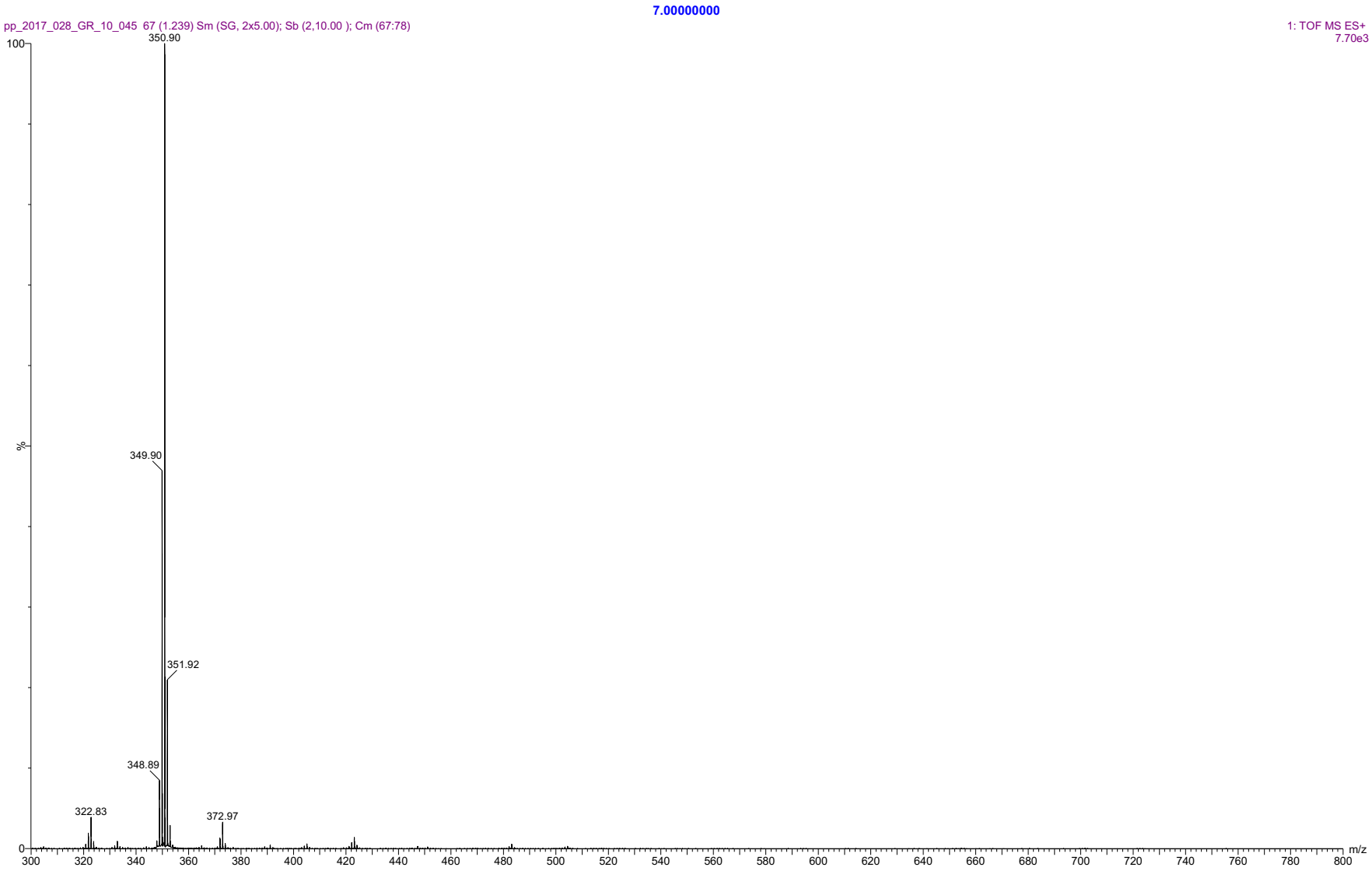
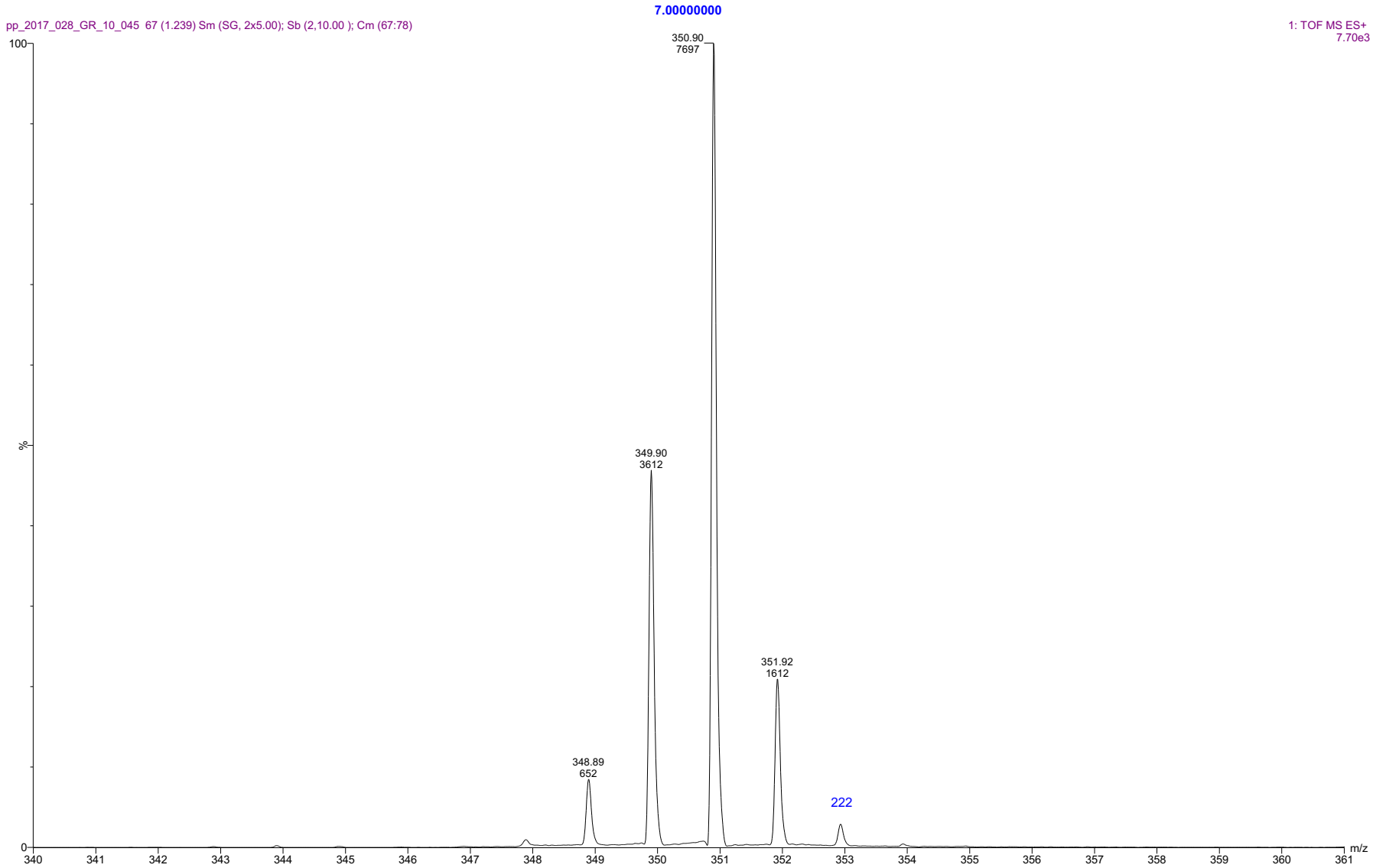

PROTON_GR-10-045_01
9.50
8.23
7.97
7.04
7.00
6.99
6.75
5.03
4.39
3.68
3.67
3.29
3.04
2.61
2.59
2.56
2.46
1.95
1.15
1.13
1.07
Formoterol-D6 (mixture of diastereomers)
1H-NMR, 600 MHz
Solvent: DMSO-D6
Lot No.: GR-10-045
0.83
0.83
0.85
2.02
3.56
1.01
1.02
3.00
1.73
f1 (ppm)




*ESI-MS spectrum for sample GR-10-045. Shows monoisotopic [M+H]+ mass.*




*Expansion of the above sowing the intensity levels.*

Data File C:\CHEM32\1\DATA\VR011122\SIG19721.D
Sample Name: GR-10-045

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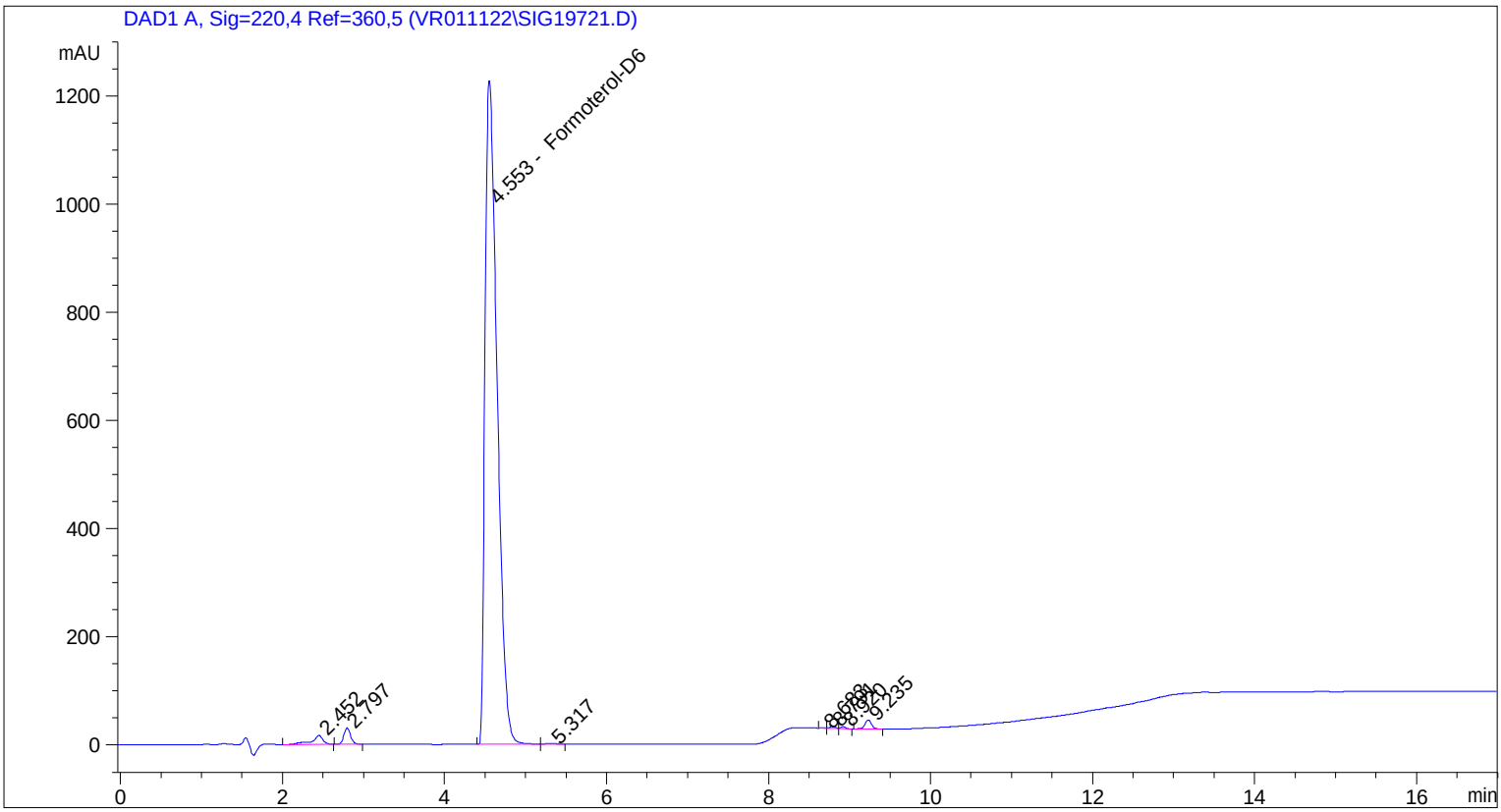
Acq. Operator : vrusu
Acq. Instrument : Instrument 1 Location : Vial 2
Injection Date : 3/24/2022 7:55:48 AM
Inj Volume : 5.0 µl
Acq. Method : C:\CHEM32\1\METHODS\VR032422_045.M
Last changed : 3/24/2022 7:54:51 AM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR032422_045PM.M
Last changed : 3/24/2022 9:53:30 AM by vrusu

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Area Percent Report

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Sorted By : Signal
Calib. Data Modified : 3/24/2022 9:52:50 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=220,4 Ref=360,5

| Peak # | RetTime [min] | Type | Width [min] | Area [mAU*s] | Area % | Name |
|---|---|---|---|---|---|---|
| 1 | 2.452 | BB | 0.1300 | 155.94363 | 1.1803 | ? |
| 2 | 2.797 | BB | 0.0886 | 173.16953 | 1.3106 | ? |
| 3 | 4.553 | BV | 0.1631 | 1.27332e4 | 96.3714 | Formoterol-D6 |
| 4 | 5.317 | VB | 0.1532 | 12.47758 | 0.0944 | ? |
| 5 | 8.683 | BV | 0.0646 | 2.61225 | 0.0198 | ? |
| 6 | 8.791 | VV | 0.0675 | 20.95851 | 0.1586 | ? |
| 7 | 8.920 | VB | 0.0639 | 16.37408 | 0.1239 | ? |
| 8 | 9.235 | BB | 0.0930 | 97.89658 | 0.7409 | ? |

Data File C:\CHEM32\1\DATA\VR011122\SIG19721.D
Sample Name: GR-10-045

| Peak # | RetTime [min] | Type | Width [min] | Area [mAU*s] | Area % | Name |
|---|---|---|---|---|---|---|
| Totals : | | | | 1.32126e4 | | |

*** End of Report ***

Data File C:\CHEM32\1\DATA\VR011122\SIG19722.D
Sample Name: GR-10-045 spl-2

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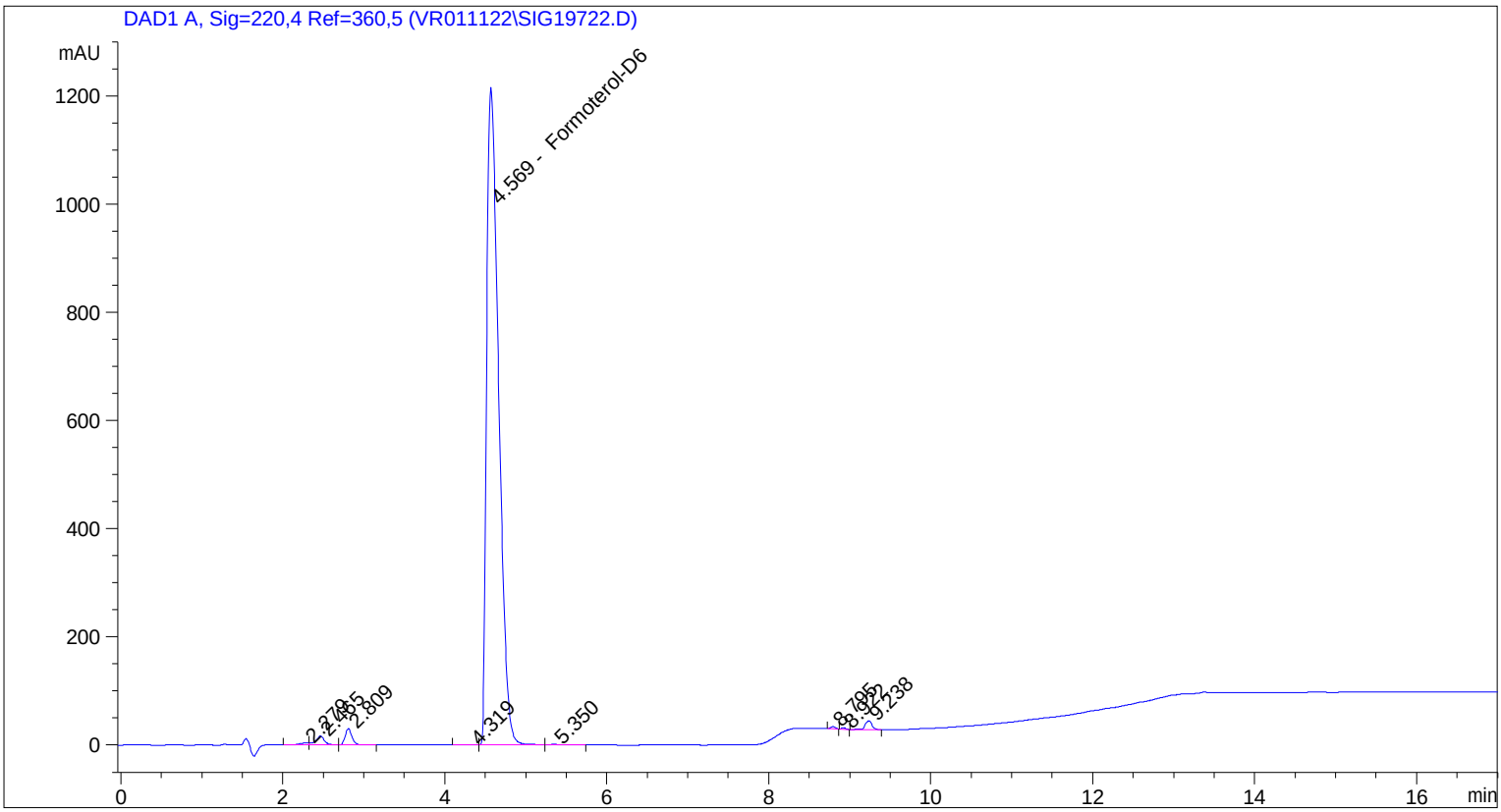
Acq. Operator : vrusu
Acq. Instrument : Instrument 1 Location : Vial 3
Injection Date : 3/24/2022 8:23:25 AM
Inj Volume : 5.0 µl
Acq. Method : C:\CHEM32\1\METHODS\VR032422_045.M
Last changed : 3/24/2022 8:22:24 AM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR032422_045PM.M
Last changed : 3/24/2022 9:53:30 AM by vrusu

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Area Percent Report

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Sorted By : Signal
Calib. Data Modified : 3/24/2022 9:52:50 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=220,4 Ref=360,5

| Peak # | RetTime [min] | Type | Width [min] | Area [mAU*s] | Area % | Name |
|---|---|---|---|---|---|---|
| 1 | 2.279 | BV | 0.1332 | 28.79320 | 0.2211 | ? |
| 2 | 2.465 | VV | 0.1074 | 122.75827 | 0.9428 | ? |
| 3 | 2.809 | VB | 0.0878 | 175.25298 | 1.3460 | ? |
| 4 | 4.319 | BV | 0.1494 | 7.28323 | 0.0559 | ? |
| 5 | 4.569 | VV | 0.1623 | 1.25465e4 | 96.3612 | Formoterol-D6 |
| 6 | 5.350 | VB | 0.1882 | 16.00462 | 0.1229 | ? |
| 7 | 8.795 | BB | 0.0612 | 16.60786 | 0.1276 | ? |
| 8 | 8.922 | BB | 0.0568 | 10.78440 | 0.0828 | ? |

Data File C:\CHEM32\1\DATA\VR011122\SIG19722.D
Sample Name: GR-10-045 spl-2

| Peak # | RetTime [min] | Type | Width [min] | Area [mAU*s] | Area % | Name |
|---|---|---|---|---|---|---|
| 9 | 9.238 | BB | 0.0931 | 96.29121 | 0.7395 | ? |

Totals : 1.30203e4

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*** End of Report ***