



**Reason for Submission**

- For Release
- For Surveillance
- For Licensing Action\*  
STN: 125742\_0
- Corrected Protocol

Date : 16 Aug 21

Subject: Electronic Protocol Signature Page

License No.: 2229

Company Name: Pharmacia & Upjohn Company LLC for BioNTech Manufacturing GmbH

Pharmacia & Upjohn Company LLC for BioNTech Manufacturing GmbH hereby submits the following lot as an electronic submission by Electronic Submissions Gateway (ESG). All test conducted on this lot are reported and pass specifications as required.

**Proper name of product**

<u>STN</u>	<u>Lot Number</u>	<u>Lot Type</u>	<u>Electronic Protocol</u> <u>Filename</u>
125742_0	FD7220	FC	20219001.P0

Sample Status

- Sample Not Required
- Sample Submitted with Protocol
- Sample Previous Submitted: 16-Aug-2021

Virus Verification

Software Name: Symantec Web Security Service	
Company Name: Symantec	Version: 7.2.1
Date of Definitions: 16-Aug-2021	Date of Scan: 16-Aug-2021

I certify that the submission is virus-free.  
The approximate file size of this submission is 1.25MB.

Comments:

N/A

Signature of Authorized Official  
Printed Name and Title of Signatory Title

(b) (6) (b) (6)  
16 Aug 2021 17:02:026-0400

REASON: I approve this document.

bcf9b9f3-dcbe-4cfe-a38a-d0dfba6a6f4c

(b) (6)



cc: STN 125742-0/2229/FC

Lot Number: FD7220  
License Name of Product: COVID-19 mRNA Vaccine (nucleoside modified)

Manufacturer Name: Pharmacia & Upjohn Company LLC for BioNTech Manufacturing GmbH

Manufacturer Address: 7000 Portage Rd., Kalamazoo, MI 49001 USA

Trade name: COMIRNATY

Date of Manufacturing: 23-Jun-2021

Expiration Date: 30-Nov-2021

**Fill Information**

<b>Container Type:</b>	Vial	<b>Volume per container:</b>	0.45mL
<b>Approved Storage Period:</b>	6 months	<b>Storage Temperature:</b>	-90°C to -60°C
<b>Number of containers manufactured:</b>	(b) (4)	<b>Number of Doses per container:</b>	6
<b>Number of containers for release:</b>	(b) (4)		
<b>Volume of single human dose:</b>	30 µg/Dose	<b>Start Date of period of Validity:</b>	Date of Manufacture

All tests conducted on this lot are reported and pass specifications as required.

(b) (6) (b) (6)  
16 Aug 2021 17:02:026-0400

REASON: I approve this document.

Signature: bcf9b9f3-dcbe-4cfe-a38a-d0dfba6a6f4c  
Title: (b) (6)  
Electronic Protocol# - 20219001.P0

Date: \_\_\_\_\_

cc: STN 125742-0/2229/FC

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**Manufacturing Site:** Pharmacia & Upjohn Company LLC, 7000 Portage Rd., Kalamazoo, MIC 49001 USA

**Date of Manufacture:** 23-Jun-2021

**Date of Expiry:** 30-Nov-2021

**Date of Fill:** 24-Jun-2021

**Product Information:**

COMPONENTS

Component Description	Batch Number	Date of Manuf.	Manufacture Site	Quantity	Target Concentration
BNT162b2 Drug Substance	(b) (4)	(b) (4)	Pfizer (b) (4)	(b) (4)	
BNT162b2 Drug Substance	(b) (4)	(b) (4)	Pfizer (b) (4)	(b) (4)	
LNP Fabrication	(b) (4)	(b) (4)	Pharmacia & Upjohn Company LLC	(b) (4)	
Formulated Bulk Batch	(b) (4)	23-Jun-2021	Pharmacia & Upjohn Company LLC	(b) (4)	

Lot Number: FD7220

License Name of Product: COVID-19 mRNA Vaccine (nucleoside modified)

**Table 1. Filled Vaccine Quality Control Tests**

Test	Test Method	Specification	Date of Test	Result
Appearance	Appearance (Visual)	White to off-white suspension	(b) (4)	MEETS TEST
Appearance (Visible Particulates)	Appearance (Particulates)	May contain white to off-white opaque amorphous particles		MEETS TEST
Subvisible Particles	Subvisible Particulate Matter	(b) (4) (b) (4)		(b) (4)
pH	(b) (4)	6.9 - 7.9		
Osmolality	Osmometry	(b) (4) mOsmol/kg		
LNP Size	Dynamic Light Scattering (DLS)	(b) (4) nm		
LNP Polydispersity	Dynamic Light Scattering (DLS)	(b) (4)		
RNA Encapsulation	Fluorescence assay	(b) (4) %		
RNA content	Fluorescence assay	(b) (4) mg/mL		
ALC-0315 content	HPLC-CAD	(b) (4) mg/mL		
ALC-0159 content	HPLC-CAD	(b) (4) mg/mL		
DSPC content	HPLC-CAD	(b) (4) mg/mL		
Cholesterol content	HPLC-CAD	(b) (4) mg/mL		
Vial content	Container Content	Not less than (b) (4) mL		
Lipid identities	HPLC-CAD	Retention times consistent with references (ALC-0315, ALC-0159, Cholesterol, DSPC)		Positive

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**Table 1 (Continued) Filled Vaccine Quality Control Tests**

Test	Test Method	Specification	Date of Test	Result
Identity of encoded RNA sequence	RT-PCR	Identity confirmed	(b) (4)	Positive
In Vitro Expression	Cell-based Flow Cytometry	(b) (4) % Cells Positive	(b) (4)	(b) (4)
RNA Integrity	Capillary Gel Electrophoresis	(b) (4) % intact RNA	(b) (4)	
Bacterial Endotoxin	Endotoxin (LAL)	(b) (4) EU/mL	(b) (4)	

**Abbreviations:** LNP = Lipid nanoparticles; CAD = charged aerosol detector; RT-PCR = reverse transcription polymerase chain reaction; LAL = Limulus amoebocyte lysate; EU = endotoxin unit

**Filled Vaccine Quality Control Tests (cont.)**

**Sterility**

**Method:** (b) (4)

**Type:** Final Container

**Container:** Sterility (b) (4)

Date On Test	Medium/Temperature	Date Off Test	Specification	Test Result
(b) (4)	(b) (4)		No growth observed	No growth observed
			No growth observed	No growth observed

cc: STN 125742-0/2229/FC

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**Filled Vaccine Quality Control Tests (Continued)**

**Lipid Identity**

**Specification**      (b) (4)      Limit      **Result**      Pass \_\_\_\_\_

<b>Lipid</b>	<b>Standard Retention Times (RT)</b>	<b>Sample Retention Time</b>	(b) (4)
ALC-0315 content	(b) (4)		
ALC-0159 content			
DSPC content			
Cholesterol content			

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**Filled Vaccine Quality Control Tests (Continued)**

**RNA encapsulation and content test**

**Test date** \_\_\_\_\_ (b) (4) \_\_\_\_\_

**Test method** \_\_\_\_\_ TM8940A \_\_\_\_\_

**Specification:** RNA Encapsulation (b) (4) **Result** \_\_\_\_\_ (b) (4) % \_\_\_\_\_

**Specification:** Content RNA Content (b) (4) mg/mL **Result** \_\_\_\_\_ (b) (4) mg/mL \_\_\_\_\_

Sample/Control	Acceptance Criteria	Result
R <sup>2</sup> for Standard A	(b) (4)	(b) (4)
R <sup>2</sup> for Standard B	(b) (4)	(b) (4)
Total RNA (mg/mL)	(b) (4)	(b) (4)
Encapsulated RNA (mg/mL)	(b) (4)	(b) (4)

cc: STN 125742-0/2229/FC

Lot Number: FD7220

License Name of Product: COVID-19 mRNA Vaccine (nucleoside modified)

**Filled Vaccine Quality Control Tests (Continued)**

**Identity of encoded RNA sequence test**

Test method RT-PCR

Test date (b) (4)

Specification Identity confirmed Result Positive

Sample/Control	Lot number	Replicate	Ct value	Acceptance criteria	Pass/Fail				
DP Sample	FD7220	1	(b) (4)		Pass				
		2							
		3							
Positive PCR Control	(b) (4)	1			(b) (4)		Pass		
		2							
		3							
Positive (b) (4) Control	PF-07302048-DP-RM	1					(b) (4)		Pass
		2							
		3							
Negative PCR Control	NA	1	(b) (4)						Pass
		2							
		3							
Negative (b) (4) Control	NA	1			(b) (4)				Pass
		2							
		3							



cc: STN 125742-0/2229/FC

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**Filled Vaccine Quality Control Tests (Continued)**

**In Vitro Expression Assay**

**Test date**                (b) (4)    

**Test method**            LAB-38621    

**Specification**          (b) (4) cells positive    

	Acceptance Criteria	Result
(b) (4) Lotnumber		(b) (4)
Positive Control lot number		
% cell viability	(b) (4)	
Average Number of Cells Counted for Sample		
Test Result (% positive cells)		

cc: STN 125742-0/2229/FC

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**Filled Vaccine Quality Control Tests (Continued)**

**Limulus Amebocyte Lysate Test**

(b) (4)



Calculations or additional comments  
N/A

cc: STN 125742-0/2229/FC

**Lot Number:** FD7220

**License Name of Product:** COVID-19 mRNA Vaccine (nucleoside modified)

**BNT162b2 Drug Substance**

**Lot Number:** (b) (4)

**Date of Manufacture:** (b) (4)

**Date of Expiry:** (b) (4)

**Storage Temperature:** -25°C to -15°C

**Approved Storage Period:** (b) (4) months

**Consumed Quantity:** (b) (4)

**Table 1. Drug Substance Quality Control Tests**

Test	Test Method	Specification	Date of Test	Result
Clarity	Appearance (Clarity)	(b) (4)		
Coloration	Appearance (Coloration)			
pH	(b) (4)			
Content (RNA Concentration)	UV Spectroscopy			
Identity of Encoded RNA Sequence	RT-PCR			
RNA Integrity	Capillary Gel Electrophoresis			
5'- Cap	RP-HPLC			
Poly(A) Tail	ddPCR			
Residual DNA Template	qPCR			
Residual dsRNA	Immunoblot			
Bacterial Endotoxin	Endotoxin (LAL)			
Bioburden	Bioburden			

**Abbreviations:** NTU = Nephelometric Turbidity Units; B = brown; RT-PCR = reverse transcription polymerase chain reaction; ddPCR = droplet digital PCR; qPCR = quantitative PCR; dsRNA = double stranded RNA; LAL = Limulus amoebocyte lysate; EU = endotoxin unit; CFU = colony forming unit

cc: STN 125742-0/2229/FC

Lot Number: FD7220

License Name of Product: COVID-19 mRNA Vaccine (nucleoside modified)

**BNT162b2 Drug Substance**

Lot Number: (b) (4)

Date of Manufacture: (b) (4)

Date of Expiry: (b) (4)

Storage Temperature: -25°C to -15°C

Approved Storage Period: (b) months

Consumed Quantity: (b) (4)

**Table 1. Drug Substance Quality Control Tests**

Test	Test Method	Specification	Date of Test	Result
Clarity	Appearance (Clarity)	(b) (4)		
Coloration	Appearance (Coloration)			
pH	(b) (4)			
Content (RNA Concentration)	UV Spectroscopy			
Identity of Encoded RNA Sequence	RT-PCR			
RNA Integrity	Capillary Gel Electrophoresis			
5'- Cap	RP-HPLC			
Poly(A) Tail	ddPCR			
Residual DNA Template	qPCR			
Residual dsRNA	Immunoblot			
Bacterial Endotoxin	Endotoxin (LAL)			
Bioburden	Bioburden			

**Abbreviations:** NTU = Nephelometric Turbidity Units; B = brown; RT-PCR = reverse transcription polymerase chain reaction; ddPCR = droplet digital PCR; qPCR = quantitative PCR; dsRNA = double stranded RNA; LAL = Limulus amoebocyte lysate; EU = endotoxin unit; CFU = colony forming unit

## Genealogy Flowchart

---

(b) (4)



Prepared By:

(b) (6)

(b) (6)

16 Aug 2021 17:02:020-0400

REASON: I approve this document.

ac492be7-205f-4142-8f38-a7ec312471dc

(b) (6)

Approved By:

(b) (6)

(b) (6)

16 Aug 2021 17:02:026-0400

REASON: I approve this document.

bcf9b9f3-dcbe-4cfe-a38a-d0dfba6a6f4c

(b) (6)

SAMPLE INFORMATION

(b) (4), (b) (6)

SAMPLE INFORMATION

(b) (4), (b) (6)



(b) (4)

SAMPLE INFORMATION

(b) (4), (b) (6)



## FD7220 Replicates 1-3

(b) (4)



(b) (4)

