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Certificate of Analysis

Substance name	MTM-010 mRNA MC1	CAS number	[--]
Abbreviation	MTM-010 mRNA MC1	Specification	BT-62225QA.1
Formula	-----	Production date	23-JAN-2021
Material	1022163	Expiry date	22-JUL-2021
Delivery note	21008	Analysis date	18-MAR-2021
Sample	3473308	Customer order	-----
Batch	41001	Customer article	-----
Customer batch	-----		
Customer name	Moderna		
Manufacturing site	Lonza AG, Lonzastrasse, 3930 Visp, Switzerland, Tel +41 27 948 5111, Fax (b) (6), contact.visp@lonza.com		
Comment	-----		
Remark	-----		

Test	Result	Unit	Specification
Appearance	(b) (4)		
BT-101557G.5/1/CHVI-101557.7			
Colour			
BT-101557G.5/1/CHVI-101557.7			
Aspect (visible Particles) Ph.Eur			
BT-101557C.5/1/CHVI-101557.7			
pH of the solution			
BT-082391A.3/1/CHVI-82391.3			
Endotoxins kin. chromogenic			
BT-62225KA.1/1/CHVI-6303.6			
Bioburden (TAMC)			
BT-008889TD.3/1/CHVI-8889.7			
Bioburden (TYMC)			
BT-008889TD.3/1/CHVI-8889.7			
Total RNA content (assay)			
BT-62225PA.1/1/GROUP-107939.1			
Residual DNA (qPCR)			
BT-62225PB.2/1/GROUP-107931.2			
Pre-Main IG1 (RP-HPLC)			
BT-62225PC.3/1/GROUP-107927.3			
Purity, main peak (RP-HPLC)			
BT-62225PC.3/1/GROUP-107927.3			
Post-Main IG2 (RP-HPLC)			
BT-62225PC.3/1/GROUP-107927.3			
5' Capped, Cap1 (assay)			
BT-62225PD.2/1/GROUP-107938.2			
PolyA tailed RNA, Main Peak (RP-HPLC)			
BT-62225PE.2/1/GROUP-107934.2			
Tailless RNA, Pre-Main Peak (RP-HPLC)			
BT-62225PE.2/1/GROUP-107934.2			

Continued Certificate of Analysis

Substance name **MTM-010 mRNA MC1**
Abbreviation **MTM-010 mRNA MC1**

Delivery note 21008
Sample 3473308
Batch 41001
Customer batch -----

Production date 23-JAN-2021
Expiry date 22-JUL-2021
Analysis date 18-MAR-2021
Customer order -----

Test	Result	Unit	Specification
#Identity BT-62225PG.2/1	(b) (4)		
For the lab: (b) (6) 18-MAR-2021 (b) (6) Restricted use Batch rejected by: (b) (6) 18-MAR-2021 (b) (6) no valid bioburden available –material is suitable for further manufacture –see TW DR 747573. Quality decision batch release by: (b) (6) 18-MAR-2021 (b) (6)	Country specific release according to CR 736000 and CR 759518		

This certificate is the output of protected data and is signed electronically in compliance with the law.