TO	Rosslynn Miller-Lee
A	Executive Director, Medical Device Evaluation Bureau MDD
FROM	Emily Hollink
DE	Medical Device Directorate

Application Information Information de soumission			
Application ***Soumission*** 312749	**Name of device** ***Nom de l'homologation*** TAQPATH	**Licence Number** ***No. de l'homologation*** N/A	**Risk Class** ***Classe de l'instrument*** 4
Application Type ***Type de soumission*** Application under IO	**Licence Type** ***Type d'homologation*** Test Kit	**Manufacturer** ***Fabricant*** THERMO FISHER SCIENTIFIC	**Company ID** ***No. d'entreprise*** 151653

Division: In vitro Diagnostics	Date Assigned: Date assignée: 2020-09-08	Date Completed: Date d'achèvement: 2020-09-09

Technology	PCR
Test Setting	Lab

1 Background/*Antécédents*

The TaqPath COVID-19 Combo Kit Assay was initially authorized as one of the first two available COVID-19 tests on March 18, 2020.

Thermo Fisher submitted an amendment to this authorization on September 2, 2020, to support an urgent software revision in advance of providing the updated software to all customers. The updated version of the assay's COVID-19 Interpretative Software addresses issues that have been sporadically reported by customers, including:

1) The validation of poorly extracted samples by the interpretive software, yielding false negative results; and
2) The Internal Positive Control being erroneously reported in some cases, causing the invalidation of results, and subsequent unnecessary retesting.

The amendment also includes updated labelling with revisions to provide clarity for extraction procedures; and revised limitations, and interpretation of results. Most of these changes are minor, or do not required detailed supporting information.

This information was reviewed under the Interim Order Respecting the Importation and Sale of Medical Devices for Use in Relation to COVID-19. This Interim Order allows the Department to issue expedited authorization for sale or import of medical devices to deal with the current significant risk of COVID-19 to the health and safety of Canadians.

2 Intended Use

TaqPath™ COVID-19 Combo Kit contains the assays and controls for a realtime reverse transcription polymerase chain reaction (RT-PCR) test intended for the qualitative detection of nucleic acid from SARS-CoV-2 in upper respiratory specimens (such as nasopharyngeal, oropharyngeal, nasal, and mid-turbinate swabs, and nasopharyngeal aspirate) and bronchoalveolar lavage (BAL) specimens from individuals meeting COVID-19 clinical criteria (e.g., clinical signs and symptoms associated with SARS-CoV-2 infection) in conjunction with COVID-19 epidemiological criteria (e.g., history of residence in or travel to a geographic region with active SARS-CoV-2 transmission at the time of travel, or other epidemiologic criteria for which SARS- CoV-2 testing may be indicated).

Results are for the identification of SARS-CoV-2 RNA. The SARS-CoV-2 RNA is generally detectable in upper respiratory and bronchoalveolar lavage (BAL) specimens during the acute phase of infection. Positive results are indicative of active infection but do not rule out bacterial infection or co-infection with other viruses. The agent detected may not be the definite cause of disease.

Negative results do not preclude SARS-CoV-2 infection and should not be used as the sole basis for patient management decisions. Negative results must be combined with clinical observations, patient history, and epidemiological information. Testing with the TaqPath™ COVID-19 Combo Kit is intended for use by trained clinical laboratory personnel specifically instructed and trained in the techniques of real-time PCR and in vitro diagnostic procedures. The TaqPath™ COVID-19 Combo Kit is only for use under the Health Canada Special Authorization.

[TaqPath™ COVID-19 Combo Kit Instructions for Use, Catalog Number A47814; Publication Number MAN0019211; Revision D.0]

3 Discussion/*Évaluation*

The information provided supports authorization of the requested amendments to the TaqPath COVID-19 Combo Kit Assay.

An updated version of the COVID-19 Interpretative Software, which was developed to address the reported issues, will be provided to customers as a mandatory upgrade. Previous software versions will be discontinued. The optimized software will result in the following:

1) A larger percentage of poorly extracted patient samples will give an invalid result, reducing the risk of false negative results cased by these samples; and

2) A reduced number of invalid results due to erroneous software interpretation of the Internal Positive Control, reducing the burden of unnecessary retesting.

The TaqPath™ RT-PCR COVID-19 Kit uses RNA from bacteriophage MS2 as a positive internal control. For determination of run validity, a Negative Control and Positive Control are tested in parallel with the patient sample. Primary and secondary analysis and reporting are performed using the COVID-19 Interpretive Software. For patient samples that were poorly extracted prior to analysis, the MS2 Positive Internal Control interpretation resulted in the reporting of some false negative results in select weakly positive samples.

To evaluate the changes to the COVID-19 Interpretive Software, the revised Internal Positive Control (MS2) analysis settings were tested using customer and internally-generated data, which demonstrated that the adjusted settings reduced the risk of false or invalid results, as appropriate. The conclusions of the TaqPath™ COVID-19 Combo Kit studies that were previously submitted were not altered by this software update.

Labelling changes provide clarity on extraction methods, and are acceptable. The information provided supports improved assay performance.

The condition will be revised to correct the three instruments that require the outstanding confirmatory study.

4 Recommendation

Previously, the TaqPath COVID-19 Combo Kit Assay was authorized with the following conditions:

Within two months (2020-08-11):

To supplement information already included in your application, provide a limit of detection confirmatory study for the TaqPath COVID-19 Combo Kit Assay when used on the QuantStudio 5 96-well and 384-well PCR platforms.

Authorization of the TaqPath COVID-19 Combo Kit Assay with the updated software and labelling is recommended, with the following condition that has been revised to reflect an updated deadline and correction of the instruments requiring this study:

Within one month:

To supplement information already included in your application, provide a limit of detection confirmatory study for the TaqPath COVID-19 Combo Kit Assay when used on the QuantStudio

5 96-well and 384-well; and QuantStudio 7 384-well PCR platforms.

I concur / Je suis d'accord

Signed in Docubridge	2020-9-21	*Signed in Docubridge*	
Emily Hollink	Date	Rosslynn Miller-Lee Executive Director/ Directrice Executive Medical Devices Evaluation Bureau/ Bureau de l'évaluation des instruments médicaux	Date