

## NPPTL COVID-19 Response: Beyond Shelf Life/Stockpiled Respirator Assessment

Manufacturer: 3M

Model Tested: 1870 (TC-84A-3844)

Date Tested: July 27, 2020

Report Prepared: July 27, 2020

These findings pertain to the 3M, model 1870 (TC-84A-3844) submitted for testing; and may not be applicable to other stockpile facilities and/or under different environmental storage conditions. The maximum and minimum filter efficiency was 99.89% and 99.30%, respectively. All twenty respirators measured more than 95% efficiency. There was no designated expiration date.

NIOSH regulation sets the minimum quality and performance requirements for the approval of respirators (42 CFR 84). **NIOSH does not have requirements for shelf life or storage conditions for particulate-only APRs.** The approval holder (i.e. the entity that is granted the approval from NIOSH) is responsible for understanding how their products' design or performance may be affected by various use or storage conditions and must provide instruction for establishing the proper use, storage, and maintenance procedures for their approved products, which may include designating a shelf life. FFR or particulate filter packaging (such as the box) often includes NIOSH-approved user instructions, label information, and recommendations on shelf life. Additionally, some approval holders also disseminate recommendations related to storage and shelf life through resources such as user and web notices. The respirators tested in this study were generally not designed for long-term storage.

Based on research conducted by NIOSH and this limited testing, NIOSH does not have enough information to definitively know the level of protection that may be provided by respirators that 1) are stored for prolonged periods of times; 2) are stored under various storage conditions; or 3) have exceeded the approval holder's designated shelf life. Users of respirators that have exceeded the designated shelf life should be forewarned to avoid a false sense of confidence; these devices may not provide the same level of protection as those that have not exceeded the designated shelf life. We recommend contacting the approval holder(s) of the respirators in the stockpile with specific questions regarding the use of product beyond the manufacturer- designated shelf life.

The results provided in this letter are specific to the subset of NIOSH-approved N95s, past their designated shelf life, that were provided to NPPTL for evaluation.

These results will be added to the CDC guidance for [Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life](#).

## Evaluation of Stockpiled and Beyond Manufacturer-Designated Shelf Life N95s



**Test:** TEB-APR-STP-0059

**Manufacturer:** 3M

**Item Tested:** 1870 (TC-84A-3844)

**Expiration Date:** None Provided

**Manufacture Date:** None Provided

Filter	Flow Rate (LPM)	Initial Filter Resistance (mmH <sub>2</sub> O)	Initial Percent Leakage (%)	Maximum Percent Leakage (%)	Filter Efficiency (%)
1	85	9.9	0.09	0.25	99.75
2	85	9.7	0.13	0.27	99.73
3	85	8.3	0.38	0.42	99.58
4	85	9.4	0.07	0.16	99.84
5	85	9.2	0.11	0.18	99.82
6	85	7.8	0.13	0.25	99.75
7	85	9.9	0.07	0.15	99.85
8	85	9.3	0.10	0.18	99.82
9	85	8.3	0.06	0.11	99.89
10	85	10.6	0.09	0.24	99.76
11	85	9.2	0.09	0.14	99.86
12	85	7.7	0.17	0.31	99.69
13	85	9.1	0.13	0.30	99.70
14	85	9.2	0.11	0.20	99.80
15	85	8.0	0.11	0.20	99.80
16	85	9.7	0.12	0.28	99.72
17	85	9.4	0.10	0.18	99.82
18	85	7.6	0.53	0.70	99.30
19	85	9.6	0.14	0.32	99.68
20	85	8.2	0.09	0.19	99.81
<b>Minimum Filter Efficiency: 99.30</b>			<b>Maximum Filter Efficiency: 99.89</b>		


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**3M** MTT-2020-318.1

**Health Care  
Particulate Respirator  
and Surgical Mask**

Respirateur contre les  
particules et masque chirurgical  
pour soins de santé

**1870**

20 



Meets ASTM standards 160mm Hg

**Mascarilla quirúrgica y  
respirador particulado para  
el cuidado de la salud**


**Respirador Filtrante de  
Partículas e Máscara Cirúrgica  
para uso hospitalar**

LATEX


Meets CDC  
guidelines for  
*M. tuberculosis*  
exposure  
control

**FIBERGLASS FREE  
HYPOALLERGENIC  
FLUID RESISTANT**


**Appropriate for Laser Surgery**



3M  
ST. PAUL, MN, USA  
1-800-228-3957



3M  
ST. PAUL, MN, USA  
1-800-228-3957



**THIS RESPIRATOR IS APPROVED ONLY IN THE FOLLOWING CONFIGURATION:**

TC:	Protection <sup>1</sup>	Respirator	Cautions and Limitations <sup>2</sup>
84A-3844	N95	1870	ABCJMNOP

**1. PROTECTION**  
N95-Particulate Filter (95% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply

**2. CAUTIONS AND LIMITATIONS**

- A - Not for use in atmospheres containing less than 19.5 percent oxygen.
- B - Not for use in atmospheres immediately dangerous to life or health.
- C - Do not exceed maximum use concentrations established by regulatory standards.
- J - Failure to properly use and maintain this product could result in injury or death.
- M - All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O - Refer to users instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P - NIOSH does not evaluate respirators for use as surgical masks.

A 1/16/02

**CE RESPIRATEUR N'EST HOMOLOGUÉ QUE DANS LA CONFIGURATION SUIVANTE**

TC:	Protection <sup>1</sup>	Respirateur	Mises en garde et restrictions
84A-3844	N95	1870	ABCJMNOP

**1. Protection**  
Filtre N95 contre lesparticules (niveau d'efficacité du filtre de 95 %) efficace contre les aérosols contenant des particules exemptes d'huile. Des restrictions de durée d'utilisation peuvent s'appliquer.

**2. MISES EN GARDE ET RESTRICTIONS**

- A - Ne pas utiliser lorsque la concentration ambiante en oxygène est inférieure à 19,5 %.
  - B - Ne pas utiliser si l'atmosphère présente un danger immédiat pour la vie ou la santé.
  - C - Ne pas utiliser en présence de concentrations supérieures au taux établi par la réglementation.
  - J - L'utilisation et l'entretien inadéquats de ce produit peuvent provoquer des blessures ou la mort.
  - M - Tous les respirateurs homologués de ce produit peuvent provoquer des blessures ou la mort.
  - N - Tous les respirateurs homologués doivent être sélectionnés, ajustés, portés et entretenus conformément aux règlements de la MSHA, de l'OSHA et à tout autre règlement en vigueur.
  - O - Ne jamais substituer ou modifier ce produit, ni lui ajouter ou lui enlever des pièces. N'utiliser que les pièces de rechange exactes déterminées par le fabricant.
  - P - Consulter les directives d'utilisation et/ou les manuels d'entretien pour obtenir des renseignements sur l'utilisation et l'entretien de ces respirateurs.
  - P - Le NIOSH n'évalue pas les respirateurs comme masques chirurgicaux.
- A 1/16/02







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Fluid Resistant  
Résiste aux fluides  
Resistente a los fluidos  
Resistente a fluidos

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FIBERGLASS FREE / LATEX FREE /  
HYPOALLERGENIC / LASER SURGERY  
EXEMPT DE FIBRE DE VERRE ET DE LATEX /  
HYPOALLERGIQUE / CHIRURGIE AU LASER  
LIBRE DE FIBRA DE VIDRIO / LIBRE DE  
LÁTEX / HIPOALERGÉNICO / CIRUGÍA LÁSER  
SEM FIBRA DE VIDRO / SEM LÁTEX /  
HIPOALERGÊNICO / CIRURGIA A LASER

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Meets CDC guidelines for *M. tuberculosis*  
exposure control.  
Satisfait aux directives du CDC sur le  
contrôle de l'exposition à *M. tuberculosis*.  
Cumple con los lineamientos de CDC para el  
control de exposición a *tuberculosis M*.  
Atende às diretrizes CDC para controle de  
exposição ao *M. tuberculosis*.

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Meets ASTM Fluid Resistant Challenge F1862,  
160mm Hg  
Satisfait à l'épreuve de résistance à la pénétration  
de liquides F1862, 160 mm Hg, de l'ASTM  
Cumple con los retos de resistencia de fluidos de  
ASTM F1862, 160mm Hg  
Atende às especificações de 160 mm Hg para  
Resistência a Fluido F1862 da ASTM.

**WARNING**  
This respirator helps protect against certain particulate  
contaminants but does not eliminate exposure to or the risk  
of contracting any disease or infection. Misuse may result  
in sickness or death. For proper use, see your supervisor  
or call 3M Helpline at 1-800-228-3957. In Canada,  
call 1-800-563-2921.

**MISE EN GARDE!**  
Ce respirateur protège contre certains contaminants mais  
n'élimine pas l'exposition ou le risque d'attraper une maladie  
ou une infection. Une mauvaise utilisation peut provoquer  
des problèmes de santé ou la mort. Pour connaître  
l'utilisation appropriée de ce respirateur, communiquer avec  
son superviseur ou le Service à la clientèle 3M au  
1-800-228-3957. Au Canada, appeler le 1-800-563-2921.

**ADVERTENCIA**  
Este respirador sirve como protección contra ciertos  
contaminantes particulados pero no elimina la exposición a  
una enfermedad o infección ni el riesgo de contraerla.  
El uso incorrecto puede ser causa de enfermedad o muerte.  
Para el uso correcto del producto, consulte a su supervisor  
o comuníquese con el departamento de Servicio al Cliente  
al 1-800-228-3957. En Canadá, llame al 1-800-563-2921.

**ADVERTÊNCIA**  
Este respirador ajuda a proteger contra certas partículas  
contaminadas mas não elimina a exposição a doenças e  
infecções ou elimina o risco de contrai-las. O mau uso  
pode resultar em enfermidade ou morte. Para o uso  
adequado, consulte o seu supervisor ou ligue para o Help  
Line Hospitalar 1-800-228-3957. No Canadá, ligue para  
1-800-563-2921.

NIOSH APPROVED N95 RESPIRATOR  
1870 N95 Particulate Respirator  
RESPIRATEUR N95 HOMOLOGUÉ PAR LE NIOSH  
Respirateur contre les particules 1870  
RESPIRADOR N95 APROBADO POR NIOSH  
Respirador particulado N95 1870  
RESPIRADOR N95 APROVADO PELO NIOSH  
Respirador Filtrante de Partículas N95 1870

3 6350

LOT 

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This respirator shape is a trademark of 3M  
Made in U.K. by 3M  
St. Paul, MN 55144-1000  
www.3M.com

La forme du respirateur est une marque de commerce de 3M  
Fabriqué au R.-U. par 3M  
St. Paul, MN 55144-1000 États-Unis  
Importé par :  
3M Canada Company C.P. 5757  
London, Ontario  
N6A 4T1

La forma de este respirador es una marca comercial de 3M  
Fabricado en el Reino Unido por 3M  
St. Paul, MN 55144-1000  
Importado por:  
3M MEXICO S.A. DE C.V.  
AV. SANTA FE NO. 55  
COL. SANTA FE  
DEL. ALVARO OBREGON  
C.P. 01210 MEXICO, D.F.



(01) 3 07 07387 56132 2

O formato do respirador é marca registrada da 3M  
Fabricado no Reino Unido por 3M  
St. Paul, MN 55144-1000  
Importado e distribuído por:  
Distribuído pela 3M do Brasil Ltda.  
Via Anhanguera, Km 110 - Sumaré - SP - CNPJ  
45.985.371/0001-08 - Indústria Brasileira  
Farmacêutica Responsável: Roberta Fiori Franchin -  
CRF - SP 15095  
Help Line Hospitalar: 0800556903  
www.3M.com/br/hospitalar





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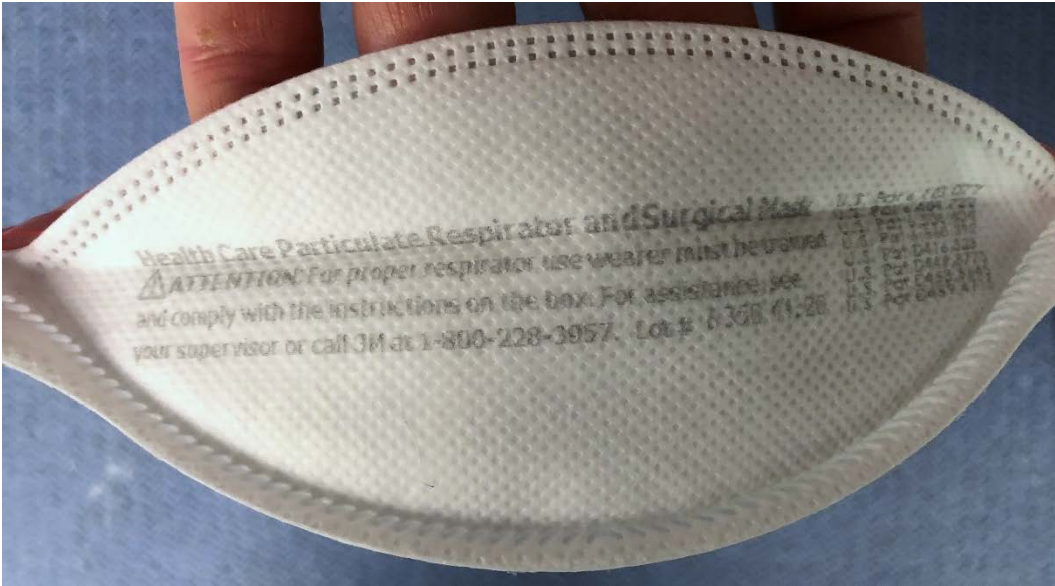


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