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We will be using Battelle to decontaminate N95 or N95 equivalent filtering face-piece respirators (no cellulose, no exhalation valves, no activated carbon). List of processable items attached. Instruction to be sent soon.

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Guide for Identifying FDA EUA Authorized N95 Respirators for Battelle CCDS™ Processing – updated July 14, 2020

Battelle, using the Battelle CCDS Critical Care Decontamination System™, has been authorized under the June 6, 2020 [FDA EUA¹](#) to decontaminate N95 or N95 equivalent filtering facepiece respirators (FFR or respirators) that do not contain cellulose and do not have exhalation valves. Respirators that contain cellulose-based materials or have an exhalation valve are excluded from the Battelle CCDS™ EUA and cannot be processed using Battelle CCDS™.

The FDA EUA does not authorize decontamination of KN95 or other non-NIOSH-approved FFRs manufactured in China. In addition, Battelle does not process FFR previously decontaminated using alternate systems or processes (e.g., UV irradiation).

Battelle is providing the following information to assist hospitals with identifying compatible N95 respirators. It is the responsibility of the organization to ensure only compatible FFR are transported to Battelle for decontamination. **Compatible FFR include NIOSH-approved N95 and non-NIOSH-approved respirators listed in [Exhibit 1](#)² that:**

- do not have exhalation valves,
- do not contain cellulose-based materials, and
- do not contain activated carbon.

NIOSH Respirators: A list of NIOSH-approved N95 Particulate FFRs can be found at this [CDC website](#).³ Only approved models that do not contain cellulose or activated carbon and do not have exhalation valves should be submitted to the Battelle CCDS™ program for decontamination.

Non-NIOSH Respirators: Respirators must be certified by NIOSH or be listed in the [FDA EUA](#)⁴ approving the use of certain imported non-NIOSH disposable FFRs. [Exhibit 1](#) of the EUA provides a detailed list of approved makes and models.

Expired N95 Respirators: The FDA has also approved the use of certain makes and model of N95s and FFRs that were NIOSH-approved but have since passed the manufacturers' recommended shelf-life, are not damaged, and have been held in accordance with manufacturers' storage conditions in strategic stockpiles. The criteria under which these FFRs can be used can be [found in the EUA](#).⁴ Review this information to ensure what types of FFRs are authorized. Expired, EUA authorized, N95s that do not contain cellulose or activated carbon and do not have exhalation valves are able to be decontaminated with Battelle CCDS™.

Below are tables that contain common N95 respirator manufacturers and product models. Included is information if the model is known to contain cellulose or activated carbon and if it is able to be processed using the Battelle CCDS™. *This list is not exhaustive. If you have questions about a different respirator model, please contact the manufacturer or supplier directly.*

- | | | |
|---|--|--|
| • 3M – (800) 243-4630 | • Halyard – (844) 425-9273 | • Moldex – (800) 421-0668 Ext 512 |
| • Cardinal Health – (800) 964-5227 | • Honeywell – (877) 841-2840 | • Prestige Ameritech – (817) 427-2700 |
| • Dräger – (800) 437-2437 | • Kimberly-Clark – (888) 346-4652 | |
| • Gerson – (508) 947-4000 | • Medline – (855) 294-9618 | |

Select 3M N95 and FFR processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ⁵	Battelle CCDS™ processable
3M	N95, Health Care Particulate Respirator and Surgical Mask 1860 and 1860S	NO	YES
3M	N95, Aura Health Care Particulate Respirator and Surgical Mask 1870 and 1870+	NO	YES
3M	N95, Particulate Respirator 8110S	NO	YES
3M	P2, Particulate Respirator 8205	NO	YES
3M	N95, Particulate Respirator 8210	NO	YES
3M	N95, Particulate Respirator 8210Plus	NO	YES
3M	N95, Particulate Respirator 8510	NO	YES
3M	N95, Aura Particulate Respirator 9205+	NO	YES
3M	N95, Aura Particulate Respirator 9210 , 9210+	NO	YES
3M	FFP2, P2, Aura Particulate Respirator 9320+	NO	YES
3M	N95, Particulate Respirator 9502+	NO	YES
3M	N95, Vertical Flat Fold Respirator 9820	NO	YES
3M	N95, VFlex Healthcare Particulate Respirator and Surgical Mask 1804 and 1804S	YES	NO
3M	N95, VFlex Health Care Particulate Respirator and Surgical Mask 1805 and 1805S	YES	NO
3M	N95, Particulate Respirator 8000	YES	NO
3M	N95, Particulate Respirator 8200	YES	NO
3M	N95, Particulate Respirator 8210V	NO	NO ^[a]
3M	N95, Particulate Respirator 8211	NO	NO ^[a]
3M	N95, Particulate Welding Respirator 8212	YES	NO ^[a]
3M	N95, Particulate Respirator with Faceseal 8214	YES	NO ^[a] (contains carbon)
3M	N95, Particulate Respirator 8511	NO	NO ^[a]
3M	N95, Particulate Respirator 8511P	YES	NO ^[a]
3M	N95, Particulate Welding Respirator 8512	YES	NO ^[a]
3M	N95, Particulate Respirator 8514	YES	NO ^[a] (contains carbon)
3M	N95, Particulate Welding Respirator 8515	NO	NO ^[a]
3M	N95, Particulate Respirator 8516	NO	NO ^[a] (contains carbon)
3M	FFP2, Particulate Respirator 8822	YES	NO ^[a]
3M	N95, 9010 , 9010CN , and 9010MX	YES	NO
3M	N95, Particulate Respirator 9010V	YES	NO ^[a]
3M	N95, VFlex Particulate Respirator 9105 , 9105S	YES	NO
3M	N95, Particulate Respirator Surgical Mask 9132	YES	NO
3M	N95, Aura Particulate Respirator 9211 , 9211+	NO	NO ^[a]
3M	FFP2, Aura Particulate Respirator 9322+	NO	NO ^[a]

Select Advoque N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ⁶	Battelle CCDS™ Processable
Advoque	N95, ADV001	NO	YES

Select BYD Precision Manufacture Company N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ⁷	Battelle CCDS™ Processable ⁸
BYD	N95, DE2322	NO	YES, with conditions[†]

[†] The production of NIOSH-approved BYD DE2322 N95 respirators began on June 9th, 2020. Earlier production dates of the same model are not NIOSH approved and are not compatible for processing under the current FDA EUA.

Select Cardinal Health N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ⁹	Battelle CCDS™ Processable
Cardinal Health	N95, USA-N95-S and USA-N95-R Alternate labels: Prestige Ameritech USA-N95-S and USA-N95-R	NO	YES
Cardinal Health	N95, N95A-S and N95A-ML Alternate labels: Makrite 9500-N95 and 9500-N95S	NO	YES

Select Draeger N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ¹⁰	Battelle CCDS™ Processable
Dräger	N95, X-plore 1750	NO	YES
Dräger	N95, X-plore 1750 V	NO	NO^[a]
Dräger	N95, X-plore 1750 V Odor	NO	NO (contains carbon)

^[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

Select Gerson N95 processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ^{11,12}	Battelle CCDS™ Processable
Gerson	N95, 1730	NO	YES
Gerson	N95, Isolair 2735	NO	YES
Gerson	N95, 1735	NO	NO (contains carbon)
Gerson	N95, 1745	NO	NO ^[a] (contains carbon)
Gerson	N95, 2130	YES	NO
Gerson	N95, 2140	YES	NO ^[a]

Select Guangzhou Harley Commodity N95 processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ¹³	Battelle CCDS™ Processable
Guangzhou Harley Commodity	N95, L-188	NO	YES

Select Halyard N95 processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ^{14,15}	Battelle CCDS™ Processable
Halyard	N95, 46727	NO	YES
Halyard	N95, 46767	NO	YES
Halyard	N95, 46827	NO	YES
Halyard	N95, 46867	NO	YES
Halyard	N95, 62126	NO	YES
Halyard	N95, 62355	NO	YES

^[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

Select Honeywell N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ^{16, 17}	Battelle CCDS™ Processable
Honeywell	N95, North SAF-T-FIT Plus N1105	NO	YES
Honeywell	N95, North SAF-T-FIT Plus N1115	NO	YES
Honeywell	N95, Sperian ONE-Fit HC-NB295F	NO	YES
Honeywell	N95, Sperian ONE-Fit NBW95 Alternate label: Willson NBW95	NO	YES
Honeywell	N95, Sperian W801	NO	YES
Honeywell	N95, Sperian ONE-Fit W1400	NO	YES
Honeywell	N95, North SAF-T-FIT Plus N1125	NO	NO ^[a]
Honeywell	N95, Sperian ONE-Fit NBW95V	NO	NO ^[a]

Select Kimberly-Clark N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose	Battelle CCDS™ Processable
Kimberly-Clark	N95, 46727	NO ¹⁶	YES
Kimberly-Clark	N95, 46767	NO ¹⁶	YES
Kimberly-Clark	N95, 46827	NO ¹⁶	YES
Kimberly-Clark	N95, 46867	NO ¹⁶	YES
Kimberly-Clark	N95, 62126	NO ¹⁶	YES
Kimberly-Clark	N95, 62355	NO ¹⁶	YES
Kimberly-Clark	N95, 64230 and 64240 Alternate labels: SureWerx KIM 64230 and KIM 64240, Jackson Industrial 64230 and 64240	NO ^{18, 19}	YES

Select Makrite N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ^{20, 21}	Battelle CCDS™ Processable
Makrite	N95, 9500-N95, 9500-N95S, MK910-N95, and MK910-N95S	NO	YES
Makrite	N95, 910-N95FMX Alternate labels: Ammex N95F and PIP 270-3000	NO ^{22, 23}	YES
Makrite	N95, MKN95-910V, 9500V-N95, and N95V-910FM	NO	NO ^[a]
Makrite	N95, 9500-N95OV and MK910-N95OV	NO	NO (contains carbon)
Makrite	N95, 9500-N95VOV and MK910-N95VOV	NO	NO ^[a] (contains carbon)

[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

Select Medicom N95 processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ^{24,25}	Battelle CCDS™ Processable
Medicom	N95, Safe+Mask Cone M2321	NO	YES
Medicom	N95, Safe+Mask Duckbill M2322 Alternate label: AMD Ritmed A2320	NO	YES

Select Medline N95 processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ²⁶	Battelle CCDS™ Processable
Medline	N95, NON24506A	NO	YES
Medline	N95, NON24507 and NON24507A	NO	YES
Medline	N95, RP88020 and RP88010 Alternate labels: Prestige Ameritech, RP88020 and RP88010	NO	YES
Medline	N95, NON24509	NO	NO^[a]
Medline	N95, NON27501 Alternate labels: Alpha ProTech 695, Crosstex Isolator Plus GPRN95, and ProTech NON27501	YES	NO

Select Moldex N95 processability using Battelle CCDS™

Manufacturer/ Supplier	Model	Known to contain cellulose ^{27,28}	Battelle CCDS™ Processable
Moldex	N95, 1200N95, 1201N95, and 1207N95	NO	YES
Moldex	N95, 1510, 1511, 1512, 1513, and 1517	NO	YES
Moldex	N95 FastFit Flat Fold, 1712	NO	YES
Moldex	N95 FastFit Flat Fold, 2112	NO	YES
Moldex	N95, 2200N95, 2201N95, 2207N95, and 2212N95 Alternate label: ULINE S-15312	NO	YES
Moldex	N95, 2600N95, 2601N95, and 2607N95	NO	YES
Moldex	N95, 4200 and 4201 Alternate label: ULINE S-19255	NO	YES
Moldex	N95, 4600 and 4601	NO	YES
Moldex	N95, 2300N95, 2301N95, 2307N95, 2700N95, 2701N95, and 2707N95 Alternate label: ULINE S-15313	NO	NO^[a]
Moldex	N95, 2400N95, 2500N95, 2800N95, 2801N95, and 4800 Alternate label: ULINE S-19256	NO	NO^[a] (contains carbon)

[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

Select Prestige Ameritech N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ^{26,29}	Battelle CCDS™ Processable
Prestige Ameritech	N95, RP88020 and RP88010 Alternate labels: ProGear RP88020 and Medline RP88020 and RP88010	NO	YES
Prestige Ameritech	N95, USA-N95-S and USA-N95-R	NO	YES

Select San Huei N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose	Battelle CCDS™ Processable
San Huei	N95, SH2550 Alternate labels: Gateway Safety PeakFit 80101	NO ³⁰	YES
San Huei	N95, SH2950 Alternate labels: Gateway Safety SaniFold 80201 and Maytex 3380	NO ^{30,31}	YES
San Huei	N95, SH5551 Alternate label: Tronex 511N95S	NO ³²	YES
San Huei	N95, SH9550 Alternate labels: Maytex 3395 , Uline S-9632 , and Tronex 536N95C	NO ^{33, 34, 35}	YES
San Huei	N95, SH2550V Alternate labels: Gateway Safety PeakFit 80102V and Uline S-19253	NO ^{30,36}	NO ^[a]
San Huei	N95, SH2550CV and SH2950CV Alternate Label: Gateway Safety PeakFit 80104CV	NO ³⁰	NO ^[a] (contains carbon)
San Huei	N95, SH2950V Alternate labels: Gateway Safety SaniFold 80202V and Maytex 3380V	NO ^{30,31}	NO ^[a]
San Huei	N95, SH9550V Alternate label: Maytex 3395V	NO ^{33,34}	NO ^[a]

Select Rizhao Sanqi Medical & Health Products N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ^{37,38}	Battelle CCDS™ Processable
3Q San Qi	N95, RIZSQ100Sb	NO	YES

[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

Select Safe Life N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ^{39, 40}	Battelle CCDS™ Processable
Safe Life	N95, B130 and B150	NO	YES, with conditions[†]

[†] Safe Life models B130 and B150 were NIOSH-approved N95 respirators until 2015. NIOSH confirmed that there was no indication of documented performance issues at the time the approvals were rescinded; the company was simply unresponsive in keeping the approvals active under the new NIOSH fee structure. Battelle can process these models using CCDS if they were fabricated when the approval was in place. Please verify that the NIOSH approval number (TC-84A-5200 for B130, and TC-84A-5201 for B150) is found on or in the packaging or on the respirator itself. This would indicate that the respirators were fabricated when the models still had approval.

Select Shanghai Dasheng N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ⁴¹	Battelle CCDS™ Processable
Shanghai Dasheng	N95, DTC3X	NO	YES
Shanghai Dasheng	N95, DTC3W	NO	YES
Shanghai Dasheng	N95, DTC3X-F	NO	NO^[a]
Shanghai Dasheng	N95, DTC3W-F	NO	NO^[a]

Select Suzhou Fangtian Industries N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ⁴²	Battelle CCDS™ Processable
Suzhou Fangtian	N95, FT-N058	NO	YES

Select Suzhou Sanical Protective Product Manufacturing N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose	Battelle CCDS™ Processable
Suzhou Sanical	N95, Benehal MS6115L	YES ^{43, 44}	NO
Suzhou Sanical	N95, Benehal MS8225	YES ^{45, 46}	NO
Suzhou Sanical	N95, Benehal MS8265 Alternate labels: Direct Relief DRN95-1	NO ^{47, 48}	NO^[a]

^[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

Select Venus Safety & Health N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose	Battelle CCDS™ Processable
Venus	N95, V4400	NO ⁴⁹	YES
Venus	N95, CN95, CN95+, and CN95 ME	NO ⁵⁰	YES
Venus	N95, RPD513N95, RPD713N95, RPD723N95	NO ^{51, 52}	YES
Venus	N95, CVN95, CVN95+, RPD514N95, RPD714N95, RPD724N95, and V-4200	NO ^{50, 51, 52, 53}	NO ^[a]
Venus	N95, CN95 OV	NO ⁵⁰	NO (contains carbon)
Venus	N95, CVN95 OV, RPD714N95OAO	NO ^{50, 51}	NO ^[a] (contains carbon)

Select WellSpan Health Safety Protection Products N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ^{54, 55}	Battelle CCDS™ Processable
WellSpan Health	N95, RMD-N95-100R	NO	YES

Select Xiantao Zhongyi Safety Protection Products N95 processability using Battelle CCDS™

Manufacturer/Supplier	Model	Known to contain cellulose ⁵⁶	Battelle CCDS™ Processable
Xiantao Zhongyi	N95, ZYB-11	NO	YES

[a] This model is equipped with an exhalation valve; respirators that have an exhalation valve are not authorized for decontamination using Battelle CCDS™, according to the FDA EUA released June 6, 2020 <https://www.fda.gov/media/136529/download>.

REFERENCES

- ¹ FDA Emergency Use Authorization for Battelle CCDS Critical Care Decontamination System™ Dated June 6, 2020 <https://www.fda.gov/media/136529/download>
- ² FDA EUA Non-NIOSH-Approved Disposable Filtering Facepiece Respirators; Exhibit 1: Authorized Respirators Updated: June 22, 2020 <https://www.fda.gov/media/136731/download>
- ³ CDC list of NIOSH-Approved Particulate Filtering Facepiece Respirators https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/N95list1.html
- ⁴ FDA Emergency Use Authority (EUA) for Non-NIOSH-Approved Disposable Filtering Facepiece Respirators; Dated June 6, 2020 <https://www.fda.gov/media/136403/download>
- ⁵ 3M Technical Bulletin May, 2020 Revision 5 <https://multimedia.3m.com/mws/media/1824613O/cellulose-certification-filtering-facepiece-respirators.pdf>
- ⁶ Advoque email correspondence with Battelle on June 23, 2020.
- ⁷ BYD email correspondence with Battelle on July 7, 2020.
- ⁸ BYD user notice regarding identification of NIOSH approved DE2322 respirators, accessed June 24th <https://www.byd.care/pages/user-notice>
- ⁹ Cardinal Health email correspondence with Battelle on May 26, 2020.
- ¹⁰ Draeger email correspondence with Battelle on May 14, 2020.
- ¹¹ Gerson email correspondence with Battelle on May 1, 2020.
- ¹² Gerson product specification sheets, accessed on July 8, 2020, <https://www.gersonco.com/product/1735-n95-particulate-respirator/>
- ¹³ Guangzhou Harley Commodity email correspondence with Battelle on June 23, 2020.
- ¹⁴ Halyard product mapping documentation. https://www.halyardhealth.com/media/213504/pi-15619_surgical_package_ch_poster.pdf
- ¹⁵ Kimberly-Clark letter to Battelle dated April 9, 2020 Re: Mask Composition.
- ¹⁶ Honeywell email correspondence with Battelle on May 19, 2020.
- ¹⁷ Honeywell email correspondence with Battelle on June 24, 2020.
- ¹⁸ Kimberly-Clark Technical Data Sheet for Kleenguard Molded Particulate Respirators, accessed May 18, 2020. https://www.eskudo.net/catalogos/Kimberly/K2286_09_01_M10_N95.pdf
- ¹⁹ Kimberly-Clark Frequently Asked Questions regarding sale of non-core personal protective equipment categories to SureWex USA, Inc. https://www.global.kcprofessional.com/media/288783141/FAQ_EN_US.PDF
- ²⁰ Makrite 9500-N95 Safety Data Sheet, received May 14, 2020.

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- ²¹ Makrite Product Literature, accessed May 19, 2020. <http://www.makrite.com/wp-content/Downloads/2019-Makrite-Product-Catalogue.pdf>, <http://www.makrite.com/products/?SingleProduct=2951>, <http://www.makrite.com/products/?SingleProduct=2952>, <http://www.makrite.com/products/?SingleProduct=2942>, <http://www.makrite.com/products/?SingleProduct=2947>
- ²² Makrite Product Literature, accessed July 11, 2020. <http://www.makrite.com/products/?&SingleProduct=2959>
- ²³ Protective Industrial Products, Inc. Specification Sheet for PIP 270-3000 N95 Flat Folded Respirator Without Valve, accessed July 11, 2020. <https://amea.pipglobal.com/archive/spec-sheets/270-3000-N95-Flat-Folded-Respirator-without-Valve.pdf>
- ²⁴ Medicom Technical Data Sheet for “M2321 – NIOSH Approved Respirator Cone Mask with dual head strap, non-sterile”, accessed on <https://www.primedentalsupply.com/files/safemask-n95-tds.pdf>
- ²⁵ Medicom Technical Data Sheet for “M2322 – NIOSH Approved Respirator Duckbill Mask non-sterile with continuous loop headband”, accessed on July 8, 2020. <https://www.primedentalsupply.com/files/medicom-n95-safemask-tds.pdf>
- ²⁶ Medline Industries “facemasks, eyewear, and N96 respirators” brochure, accessed April 30, 2020. https://www.medline.com/media/catalog/Docs/MKT/LITe19034_BRO_Surgical%20Face%20Masks_19.pdf
- ²⁷ Moldex Coronavirus Frequently Asked Questions page, accessed May 1, 2020. <https://www.moldex.com/wp-content/uploads/Coronavirus-FAQ.pdf>
- ²⁸ Moldex Product Catalog, accessed May 15, 2020. <https://www.moldex.com/wp-content/uploads/9700-748-REV-AI-5-20-full-line-catalog.pdf>
- ²⁹ Prestige Ameritech webpage on N95 Particulate Filter Respirator and Surgical Mask, accessed on May 12, 2020. <https://www.prestigeameritech.com/progearmasks>
- ³⁰ Gateway Safety email correspondence with Battelle on May 1, 2020.
- ³¹ Maytex 3380 Technical Data Sheet, accessed May 2020. http://www.maytexcorp.com/spec_html/3380.htm
- ³² Tronex email correspondence with Battelle on May 20, 2020.
- ³³ San Hwei SH9550 Safety Data Sheet, received May 15, 2020.
- ³⁴ Maytex 3395 Technical Data Sheet, accessed May 2020. http://www.maytexcorp.com/spec_html/3395.htm
- ³⁵ ULINE Product Specifications webpage, “Additional Info” tab for S-19253, accessed May 13, 2020. <https://www.uline.com/Product/Detail/S-9632>
- ³⁶ ULINE Product Specifications webpage, “Additional Info” tab for S-9632, accessed May 17, 2020. <https://www.uline.com/Product/Detail/S-19253>
- ³⁷ Shanghai Xianyu Electronics email correspondence on July 9, 2020. <https://img1.wsimg.com/blobby/go/8171eaec-23e5-46b5-aae0-ab82b56c665e/downloads/PHP%20-%20N95%20Respiratory%20Mask%20Model%20RIZSQ100SB.pdf?ver=1591133660131>
- ³⁸ PetroHouston Partners RIZSQ100SB product presentation, accessed June 30, 2020. <https://img1.wsimg.com/blobby/go/8171eaec-23e5-46b5-aae0-ab82b56c665e/downloads/PHP%20-%20N95%20Respiratory%20Mask%20Model%20RIZSQ100SB.pdf?ver=1591133660131>

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- ³⁹ Tiancheng Medical Network Product Specifications for Safe Life N95 Medical Protective Mask webpage, accessed June 11, 2020. https://www.tecenet.com/chanpin/show_fuwu.php?itemid=45554
- ⁴⁰ Safe Life B100 Series Product Brochure, accessed June 11, 2020. <https://www.yumpu.com/en/document/read/3651211/face-masks-vs-n95-respirators-aur-a-critical-tribe-creative>
- ⁴¹ Shanghai Dasheng email correspondence with Battelle on June 27, 2020.
- ⁴² Suzhou Fangtian email correspondence with Battelle on June 12, 2020.
- ⁴³ Sushou Sanical Protective Product Manufacturing webpage, accessed June 1, 2020. <https://www.cemask.com/en/product/NIOSH-approved-cup-disposable-particulate-respirator.html>
- ⁴⁴ Product literature documented on web marketplace, accessed June 10, 2020. https://www.alibaba.com/product-detail/Benehal-NIOSH-N95-approved-protective-dust_60401030640.html?spm=a2700.galleryofferlist.0.0.30f66e2fCo4hKK
- ⁴⁵ Sushou Sanical Protective Product Manufacturing webpage, accessed June 1, 2020. <https://www.cemask.com/en/product/nonwoven-foldable-dustproof-snti-smog-particulate-respirator.html>
- ⁴⁶ Product literature documented on web marketplace, accessed June 10, 2020. https://maskin.en.alibaba.com/product/60293669501-803028323/Benehal_4_Ply_Flat_Fold_respirator_mask_n95_n95_respirator.html
- ⁴⁷ Sushou Sanical Protective Product Manufacturing webpage, accessed June 1, 2020. <https://www.cemask.com/en/product/foldable-exhalation-valve-custom-printed-particulate-mask.html>
- ⁴⁸ Product literature documented on web marketplace, accessed June 10, 2020. https://www.alibaba.com/product-detail/Foldable-NIOSH-Approved-N95-Anti-Air_60840192341.html?spm=a2700.galleryofferlist.0.0.30f66e2fCo4hKK
- ⁴⁹ VENUS Safety & Health Pvt. Ltd. V-4400 technical data sheet, accessed May 14, 2020. <https://www.venusohs.com/products/view-datasheet/venus-v4400/v-4400>
- ⁵⁰ VENUS Safety & Health Pvt. Ltd. V-2400 series technical data sheet, accessed July 12, 2020. <https://www.venusohs.com/products/view-datasheet/venus-cn95-2/mfr-2400>
- ⁵¹ VENUS Safety & Health Pvt. Ltd. V-1100 series technical data sheet, accessed July 12, 2020. <https://www.venusohs.com/products/view-datasheet/venus-rpd724n95/rpd-723-724>
- ⁵² VENUS Safety & Health Pvt. Ltd. V-2900 series technical data sheet, accessed July 12, 2020. <https://www.venusohs.com/products/view-datasheet/venus-rpd714n95/rpd-814-814-0a>
- ⁵³ VENUS Safety & Health Pvt. Ltd. V-2900 series technical data sheet, accessed July 12, 2020. <https://www.venusohs.com/products/view-datasheet/venus-4200/v-410-420-430>
- ⁵⁴ WellSpan Health Material Specifications Data Sheet, received on June 30, 2020.
- ⁵⁵ WellSpan Health Material Supplier Information and Product Details, received on June 30, 2020.
- ⁵⁶ Xiantao Zhongyi Safety Protection Products Company, Ltd. ZYB11 DATE SHEET N95, received May 26, 2020.