

# MOLDEX<sup>®</sup>

Ideas that wear well.<sup>®</sup>



## 2019 CHEMICAL SELECTION GUIDE

### WARNING

The information in the *2019 Moldex Chemical Selection Guide* is dated and was accurate to the best of Moldex's knowledge as of January 2019. This *2019 Guide* supercedes all previous *Guides*, including printed and electronic versions. If you have an electronic version other than the *2019 Guide* please delete it from your computer. The *2019 Guide* can be accessed online at <http://www.moldex.com/pdf/datasheets/chemicalselectionguide.pdf>

Before selecting Moldex respirators for use, it is important that you refer to the most recent *Guide* available. If you have any questions on how to use this guide or on the selection and use of any respiratory protection device, call the Moldex Technical Services Department at +1 (800) 421-0668, +1 (310) 837-6500, ext. 512/550 or [tech@moldex.com](mailto:tech@moldex.com).

Products listed in this *Guide* are subject to the Moldex limited warranty located on the back cover.

**The user must use the NIOSH multi-vapor program in conjunction with this guide to determine the service life of cartridges.**

### TERMS OF USE

"The information contained in this guide are only guidelines. It is the user's responsibility to make a respirator equipment selection based on factors only known to the user including, but not limited to worksite specific information, air sampling, warning properties, change out schedules and any other criteria that may affect the health and safety of a worker. If you are uncertain as to the appropriateness of a particular device for a specific situation, do not use OR ALLOW USE OF any Moldex –Metric Inc. (Moldex) respirator, **DO NOT ENTER OR ALLOW OTHERS TO ENTER ANY AREA WHERE RESPIRATORY PROTECTION IS REQUIRED** and seek the advice of a Health and Safety Professional."

Moldex makes no warranties, understandings or representations, whether expressed, implied, or statutory regarding this Chemical Selection Guide. Moldex specifically disclaims any warranty for merchantability or fitness for a particular purpose. In no event shall Moldex or anyone else who has been involved in the creation, production or delivery of this website be liable for any direct, indirect, special, incidental or consequential damages arising out of the use of or inability to use this respirator selector or for any claim by any other party. Information obtained from the Moldex Chemical Selection Guide serves as a guideline only. Please refer to national and local standards for detailed information about respiratory protection requirements and utilize the services of an Industrial Hygienist or other Safety and Health Professional to make final decisions about selection of proper respiratory equipment for your workplace or use.

I have read and accept the Terms and Conditions.

## INTRODUCTION

This *Guide* may be used as an aid to select appropriate respiratory protection for specific contaminants. Because conditions at the worksite can vary substantially, a comprehensive evaluation must be made to determine the correct respiratory protection. When contaminants at a worksite have been identified and concentrations measured, this *Guide* may be used to help select the appropriate respirator. Only qualified professionals, familiar with the actual working conditions and knowledgeable in the benefits and the limitations of respiratory protection equipment, should make the selection. Once a respirator has been selected, it is important to continually monitor its effectiveness, as well as the dynamic worksite situation. If selection criteria changes, including but not limited to worksite conditions or standards and regulations, a new evaluation must be made to determine the appropriate respiratory protection.

## COMPREHENSIVE RESPIRATORY PROTECTION PROGRAM

Wherever respirators are used in a work environment, a comprehensive respiratory protection program must be implemented in accordance with OSHA 29 CFR 1910.134, as a minimum. This regulation covers permissible practice, written programs, training, maintenance and care, selection, use, fit testing, cleaning and storage, medical evaluation, breathing air quality, identification of filters and cartridges, program evaluation, and record keeping. When a chemical cartridge respirator is used, it can only be used if a cartridge change schedule is developed in accordance with 29 CFR 1910.134 (d)(3)(III)(B)(2). If a change schedule is not developed you should not use Moldex respirators. See pages 29-31 for more information.

## RESPIRATOR FIT TESTS

Any respirator used by an employee must be fit tested to ensure that the respirator is providing adequate protection to the wearer. All Moldex respirator users should be fit tested to ensure proper fit of the respirator. OSHA 1910.134 describes the various types of fit tests that may be utilized.

## ASSIGNED PROTECTION FACTORS (APF)

All Moldex respirators listed in this *Guide* are half mask or full face, negative pressure, air purifying respirators. Generally, these are assigned an APF of 10 or 50 respectively, unless a specific OSHA, Federal, State or Local standard assigns a lower APF for a particular class of respirator to be used to protect against a particular substance. In such cases the lower APF must be used. A full facepiece respirator fitted using a qualitative fit test only receives an APF of 10.

## OTHER PERSONAL PROTECTIVE EQUIPMENT (PPE)

Certain chemicals may require other forms of PPE in addition to respirators due to absorption or damage to the skin, eyes or mucous membranes. When supplying respiratory protective equipment, other PPE must also be considered. Failure to provide appropriate protection with certain chemicals may result in adverse health effects and render the use of a respirator ineffective. Lastly, always consider all the hazards that an employee may be exposed to and the advantages and disadvantages of using a particular piece of equipment in concert with other items (e.g. hard hats, gloves, faceshields, etc.).

**When using any Moldex respirator, read all applicable warnings and information provided with it. Not all Moldex respirators have been sold with warnings or use instructions for personnel involved in healthcare or related situations, where there may be the possibility of contact with disease or biological hazards. If you are considering such uses, first call the Moldex Technical Dept., +1 (310) 837-6500 ext. 512/550 or +1 (800) 421-0668 ext. 512/550. See additional warnings in packaging or Moldex Website or page 4 of this guide.**

## EXPLANATION OF GUIDE FORMAT

**Chemical Names** listed are either those used by OSHA in 29 CFR 1910.1000, NIOSH's Pocket Guide to Chemical Hazards or ACGIH's 2018 Guide to Occupational Exposure Values. Only substances that have OSHA Permissible Exposure Limits (PEL) and/or American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) are listed in the Moldex suggestions section of this guide, when appropriate.

**CAS Numbers** are below the name of most chemicals and are the Chemical Abstracts Service (CAS) registry number. This number is unique for each chemical.

**Synonyms** listed are some of those common "other" names of a substance found in various references, [this list is not all inclusive](#).

**Filter Type** generally indicates what type of filter and/or cartridge may be considered for protection from a particular substance. Remember these suggestions are not absolute. Selection must be based on consideration of the work and use situation encountered in a particular environment.

"N" means Dusts and Non-Oil Based Mists

"R" means Dusts, and Oil and Non-Oil Based Mists with time restrictions

"P" means Dusts and Oil and Non-Oil Based Mists, extended life for Dusts and Non-Oil Based Mists (see Moldex time restrictions on instructions)

"AM" means Ammonia/Methylamine

"AG" means Acid Gas

"FORM" means Formaldehyde

"OV" means Organic Vapor

"OV/AG" means Organic Vapor/Acid Gas

"MULTI" means Multi Gas/Vapor

"95" means 95% efficient

"99" means 99% efficient

"100" means 99.97% efficient

"/" means OR. For example, 8970/8940 means you may use either filter.

"FF" means full face respirator; 9000 is suggested.

Note that combinations of the above may be listed. Also note that combination Moldex cartridges (7300/8300) may be used where an OV or AG is listed, but the service life of the cartridge will be considerably less for the particular substance. A similar situation of reduced service life exists with the 7600/8600 multi-gas cartridges used against various contaminants, see instructions for specific information.

**Moldex Suggestions** are the Moldex respirators that are appropriate for protection from the substance listed. For example, remember, anywhere the 2200N95 (EZ 22) or 2300N95 (EZ 23) are suggested the 2400N95 (2800N95) or 2500N95 (2940R95) may also be used. **The 2400N95 or 2800N95 is usually suggested where protection from dusts or non-oil based mists is required and nuisance level (below the PEL) organic vapor odors are also present. The 2500N95 is usually suggested where protection from dusts or non-oil based mists is required and nuisance level (below the PEL) acid gas irritants are also present and 2940R95 for dusts and both oil and non-oil based mist.**

Additionally, any situation where a particular Moldex product is suggested you may move to a higher level of protection provided the type of protection is equivalent. For example,

- you may use the 2310N99 in place of the 2200N95 if dust or non-oil based mist protection is required;
- you may use the 7940/8940 in place of the 2310N99 if protection from a dust, fume or mist is required;
- you may use any N99 respirator/filter in place of any N95 respirator/filter.
- you may go from a half mask facepiece respirator to a full facepiece respirator with equivalent or higher filters/cartridges.

## BUT

- you may not go from 2200N95 to 7100/8100 to protect against a fume because 7100/8100 is used to protect against organic vapors only;

## AND

- you may not go from a 7940P100/8940P100 to a 2300N95 to protect against things such as lead because lead requires an N, R, or P100 filter, or from a 2730N100 to a 2400N95 because the efficiency level is lower.
- you may not go down from a full facepiece to a half mask without proper evaluation of the workplace.
- Note: Where oil based aerosols are present only an R or P Series filter may be used. Moldex suggests that you assume that any non-aqueous liquid is oil-based.

TLV's and PEL's are listed where either one or both exist. We suggest that in cases where both a TLV and PEL exist for a particular substance, that the lower of the two be used. You must also check if state and local regulations may be applicable.

An "o" next to exposure limit indicates it is an OSHA PEL. A "t" indicates it is an ACGIH TLV.

Exposure limit concentrations may be listed as either ppm (parts per million), or mg/m<sup>3</sup> (milligrams per cubic meter),mppcf (million particles per cubic foot) or f/cc (fibers per cubic centimeter of air).

All exposure limits refer to 8 hours per day, 40 hours per week Time Weighted Averages (TWA), unless otherwise stated.

If a "c" appears next to a limit this indicates that it is a ceiling value which refers to the concentration that should not be exceeded at any time during work exposure.

If an "s" appears next to a limit this indicates that it is a short term

exposure limit (STEL), which refers to a 15 minute TWA (unless otherwise indicated), which shall not be exceeded during a workday.

Both "s" and/or "c" designations may be in addition to or in lieu of another exposure limit.

A "skin" designation indicates that the substance can be absorbed through the skin, eyes or mucous membranes and appropriate measures must be taken to avoid absorption.

A "SEN" indicates TLV-confirmed potential for worker sensitization as a result of dermal contact and/or inhalation exposure based on the weight of scientific evidence.

A "DSEN" designation indicates that the substance may cause dermal sensitization resulting from the interaction of the absorbed agent and ultraviolet light (i.e. photosensitization).

A "RSEN" designation indicates the substance may cause respiratory sensitization.

For more specific definitions refer to 29 CFR 1910.1000 and to the ACGIH TLV Booklet.

**IDLH (Immediately Dangerous to Life and Health) and LEL (Lower Explosion Limit) are levels taken directly from the 2005 NIOSH Pocket Guide to Chemical Hazards. In cases where the LEL is listed it is considered as IDLH. In all cases the LEL is listed as 10% LEL to provide a safety factor against explosion.**

**N.D. means not determined.**

**Comments** list any additional points that should be noted such as:

- If a substance is a carcinogen or a suspected carcinogen, it is listed here. Note that only when OSHA or ACGIH consider a substance a carcinogen or suspected carcinogen it is listed. Carcinogen or suspected carcinogen from any other organizations or agencies have not been included in this *Guide*.

*ACGIH designates carcinogens as follows:*

TLV-A1: Confirmed Human Carcinogen. The agent is carcinogenic to (t-A1) humans based upon the weight of evidence from epidemiologic studies.

TLV-A2: Suspected Human Carcinogen. Human data are accepted as (t-A2) adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is used primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans.

TLV-A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans: (t-A3) The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

TLV-A4: Not Classifiable as a Human Carcinogen: Agents which cause

(t-A4) concern that they could be carcinogenic for humans, but which cannot be assessed conclusively because of a lack of data. *In vitro* or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

TLV-A5: Not Suspected as a Human Carcinogen: The agent is not suspected (t-A5) to be a human carcinogen on the basis of properly conducted epidemiologic studies in humans. These studies have sufficiently long follow-up, reliable exposure histories, sufficiently high dose, and adequate statistical power to conclude that exposure to the agent does not convey a significant risk of cancer to humans; OR, the evidence suggesting a lack of carcinogenicity in experimental animals is supported by mechanistic data.

Substances for which no human or experimental animal carcinogenic data have been reported are assigned no carcinogen designation.

Exposures to carcinogens must be kept to a minimum. Workers exposed to A1 carcinogens without a TLV should be properly equipped to eliminate to the fullest extent possible all exposure to the carcinogen. For A1 carcinogens with a TLV and for A2 and A3 carcinogens, worker exposure by all routes should be carefully controlled to levels as low as reasonably achievable below the TLV.

OSHA designates carcinogens as follows:

CA: Carcinogen defined with no further categorization.

Additionally,

- If specific OSHA standards exist for a substance, it is listed in this section.
- If OSHA is in the process of changing the regulation of a particular substance, it is listed as "OSHA in the process of 6b rulemaking."
- If ACGIH intends to change a TLV or a carcinogen designation, it is listed as "ACGIH NIC (Notice of Intended Change)."
- If ACGIH has a Biological Exposure Indices (BEI), it is listed as "Substance for which an ACGIH BEI exists."
- If ACGIH intends to change a short term exposure limit or ceiling value, it is listed as ACGIH NIC STEL/CEIL.

Pages 32-34 contains names of chemicals that Moldex does not recommend its respirators to be used against. Refer to this list when you are not able to locate a chemical in the *Guide* as it may be listed there. Moldex does not make suggestions for chemicals not listed in the *Guide*.

Short service life means that cartridge will have a low service life.

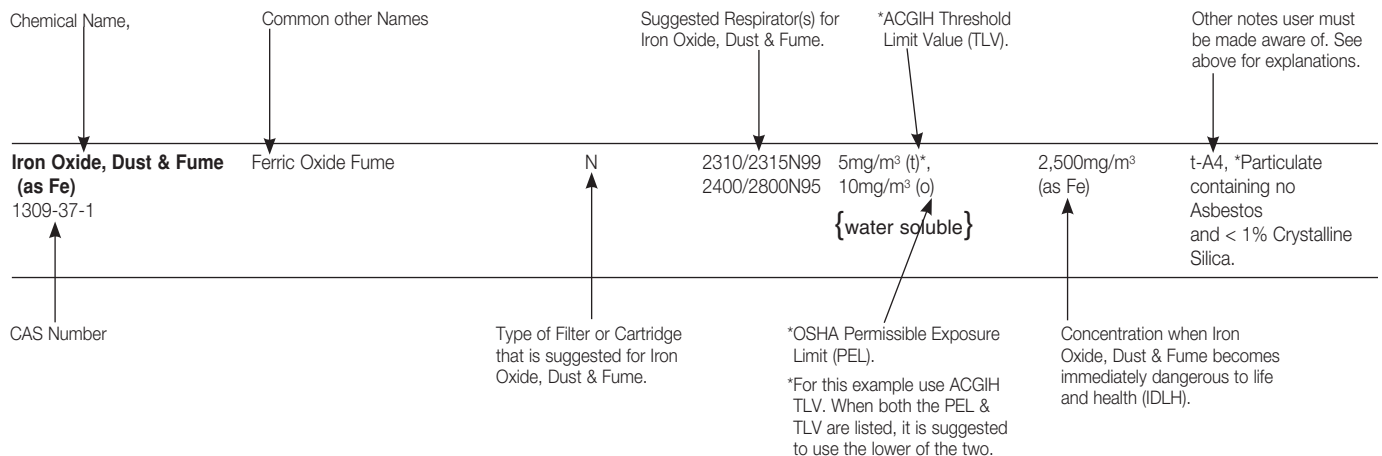
**REFERENCES:**

AIR CONTAMINANTS – PERMISSIBLE EXPOSURE LIMITS TITLE 29, CFR1910.1000 U.S. Department of Labor, Occupational Safety and Health Administration

POCKET GUIDE TO CHEMICAL HAZARDS U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, 2005

2018 GUIDE TO OCCUPATIONAL EXPOSURE VALUES American Conference of Governmental Industrial Hygienists, 2017

**Example on how to use the Moldex 2019 Chemical Selection Guide**



## SUPPLEMENTAL HAZARD WARNINGS FOR MOLDEX PARTICULATE RESPIRATORS

These are **Warnings and Limitations** that all users must be made aware of in addition to all warnings and other information on the outside of the oldex respirator packaging or other published related information. **You must read and comply with these Warnings and Limitations at all times** and if your employer as determined that it is appropriate to use this respirator.

**Proper use of this respirator may reduce but will not eliminate the risk of illness or death from exposure to some Chemical, Biological, Radiological, or Nuclear (CBRN) hazards.** CBRN hazards include, but are not limited to, bacteria, toxins, and viruses that can cause death, serious bodily injury or disfigurement. The long-range and short-range risks of CBRN hazards and the amount and manner of exposure that may produce such risks remain to a great extent unknown. Use of this respirator must be in accordance with the Centers for Disease Control (CDC) Health Advisories or any other Local, State or Federal recommendations for use of respirators against specific CBRN hazards. This respirator should not be used for many CBRN hazards.

**There are more efficient models of respirators with a higher level of protection available from Moldex and other manufacturers. It is up to the employer, and not Moldex, to determine if a respirator should be worn and if so, which type, size, level of protection, and model.**

### **BACKGROUND**

The National Institute for Occupational Safety and Health (NIOSH), a branch of the CDC and a U.S. Government agency, is responsible for testing and certifying respirators for protection against hazardous industrial contaminants. Procedures for selecting and using proper respiratory protection are regulated by various governmental agencies, such as the Occupational Safety and Health Administration (OSHA).

NIOSH tests and certifies certain respirators for use against chemical warfare agents, biological warfare agents or biohazards and provides advisory information for some biohazards, but OSHA and other government agencies have not set any exposure standards for these agents or biohazards, in general.

**Moldex does not make recommendations for any type of respirator to be used against CBRN hazards for workers or the general public.**

You should know that there may be no obvious warnings of the presence or release of CBRN hazards.

### **WARNINGS FOR ALL USERS**

- This respirator must only be used for substances having Permissible Exposure Limits (PELs) and only where deemed appropriate by your employer.
- This respirator must be fit tested. If you cannot obtain a proper fit, do not use the respirator and do not enter the risk area.
- This respirator is not for use with beards or other facial hair that prevents direct contact between the face and sealing surface of the respirator.
- Moldex respirators, when properly fitted and used as part of a comprehensive respiratory protection program, may reduce wearer exposure to some airborne hazards, but not all.
- In the event of a sudden or unexpected CBRN hazard release, you may use this respirator for escape only if you have not been provided with a more appropriate respirator for this type of situation. Do not remove the mask from the face until you have left the contaminated area.
- Do not reuse or store for reuse or hang around neck unless your employer specifically authorizes reuse. Dispose of respirator as a hazardous waste in accordance with your employer's directions.
- Use other personal protective equipment, as directed by your employer. Where appropriate use protective gloves when handling or removing respirator and dispose of respirator and then gloves in accordance with your employer's directions.
- If CDC or other Local, State or Federal agency issues new or revised guidelines for respirator use against specific hazards, users must strictly comply.

### **WARNINGS FOR USE OF PARTICULATE RESPIRATORS AGAINST TB**

OSHA and CDC have recommended the use of any of the particulate respirators approved under 42CFR84 as a means of providing help in complying with a program designed to reduce occupational exposure to tuberculosis.

The level of effectiveness of respiratory protection from tuberculosis cannot be determined with currently available data. However, proper use of appropriate Moldex respirators in conjunction with a comprehensive respiratory protection program may reduce, but will not eliminate, risk of infection.

- Be sure to read the Limitations outlined below and strictly follow all Warnings set forth under the WARNINGS FOR ALL USERS.
- When using any Moldex respirator, filter replacement and/or disposal must be handled in accordance with your Healthcare Facility's comprehensive respiratory protection program.
- If disinfectants are used to sanitize reusable facepieces, you must consult with your Healthcare Facility and run tests to ensure the compatibility of any disinfectant with Moldex reusable facepiece materials. Use of disinfectants could impair the efficiency of the respirator and result in a loss of protection.

### **LIMITATIONS**

- **Respirators may reduce but do not eliminate wearer exposure to airborne hazards or the risk of contracting any disease or infection.** Only use this respirator as part of a comprehensive respiratory protection program. You will receive no respiratory protection if this respirator is not properly fitted and worn. Additionally, potentially hazardous particles, including infectious agents, smaller than the particle sizes used in NIOSH certifications are likely to exist in certain environments. Some published data indicates that these smaller particles may not be filtered out as effectively as the particle sizes used by NIOSH [N Series Count Median Diameter (CMD)  $0.075 \pm .02\mu\text{m}$  Geometric Standard Deviation 1.86 (GSD) and R & P Series CMD  $0.185 \pm .02\mu\text{m}$  1.6 (GSD)] when certifying respirators. It is imperative that you determine the size and potential hazards of the particles that may be present in the environment before selecting appropriate respiratory protection, and that you refer to CDC guidelines when selecting and using any respirator, particularly in environments where smaller types of particles, such as those referenced above, may be present.
- If the respirator comes in contact with blood or fluids, including body fluids, leave contaminated area as soon as possible and discard and replace the respirator.
- Moldex respirators must not be used on children.

For further information on use of respirators contact Moldex at +1 (800) 421-0668 or +1 (310) 837-6500 ext. 512/550, your Employer, or CDC at [www.cdc.gov](http://www.cdc.gov) or +1 (800) 311-3435 or +1 (404) 498-1515.

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>-A-</b>						
<b>Acetic Acid</b> 64-19-7	Acetic acid (aqueous), Ethanoic acid, Glacial acetic acid (pure compound), Methanecarboxylic acid [Note: Can be found in concentrations of 5-8% in vinegar]	FF-OV	9001/2/3+ 7100	10ppm (o)(t)	50ppm	
<b>Acetic Anhydride</b> 108-24-7	Acetic acid anhydride, Acetic oxide, Acetyl oxide, Ethanoic anhydride	FF-OV	9001/2/3+ 7100	5ppm (o) 1ppm (t)	200ppm	t-A4
<b>Acetone</b> 67-64-1	Dimethyl Ketone, Ketone Propane 2-Propane	OV	7100/8100	250ppm (t) 1,000 (o) 500 (s)(t)	2,500ppm [10% Lower explosion limit]	Substance for which ACGIH BEI exists; t-A4 Short service life
<b>Acetonitrile</b> 75-05-8	Cyanomethane, Ethyl nitrile, methyl cyanide	OV	7100/8100	20ppm (t) 40ppm (o) -skin-	500 ppm	t-A4
<b>Acetylenedichloride</b> 540-59-0 156-59-2 156-60-5	See 1,2-Dichloroethylene					
<b>Acetylene tetrabromide</b> 79-27-6	See 1,1,2,2-Tetrabromoethane					
<b>Acrolein</b> 107-02-8	Acryldehyde; Acraldehyde; Acrylic aldehyde; Allyl aldehyde; Propenal; 2-Propenal	FF-OV	9001/2/3+ 7100	0.1(t)-c) 0.1ppm(o) -skin-	2ppm	t-A4 Short service life
<b>Acetylsalicylic Acid</b> 50-78-2	Aspirin	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (t)	N.D.	
<b>Acrylamide</b> 79-06-1	Acrylamide monomer, Acrylic amide, Propenamide, 2-Propenamide	OV/P100	7100+7940 8100+8940	.03mg m <sup>3</sup> (t)*; .3mg/m <sup>3</sup> (o) -skin-	60mg/m <sup>3</sup>	t-A3; -*Measured as inhalable fraction and vapor
<b>Acrylic Acid</b> 79-10-7	Acroleic acid, Aqueous acrylic acid (technical grade is 94%), Ethylenecarboxylic acid, Glacial acrylic acid (98% in aqueous solution), 2-Propenoic acid	FF-OV	9001/2/3+ 7100	2ppm,(t) -skin-	N.D.	t-A4
<b>Acrylonitrile</b> 107-13-1	Acrylonitrile monomer, AN, Cyanoethylene, Propenenitrile, 2-Propenenitrile, VCN; Cyanoethylene	OV; Change every shift	7100/8100	2ppm (o)(t)*; 10ppm (c)(o) -skin-	85ppm	Dispose of cartridge after shift; See 29CFR1910.1045; O-Ca; t-A3 Odor detectable only above PEL
<b>Allyl Alcohol</b> 107-18-6	AA, Allylic alcohol, Propenol, 1-Propen-3-ol, 2-Propenol, Vinyl carbinol	FF-OV	9001/2/3+ 7100	2ppm (o) 0.5ppm (t) -skin	20ppm	t-A4
<b>Allyl Glycidyl Ether</b> 106-92-3	AGE, 1-Allyloxy-2, 3-epoxypropane, Glycidyl allyl ether, [[2-propenyloxy)methyl] oxirane	FF-OV	9001/2/3+ 7100	1ppm (t) 10ppt (c)-(o)	50 ppm	t-A4
<b>Allyl Propyl Disulfide</b> 2179-59-1	4,5-Dithia-1-octene, Onion oil, 2-Propenyl propyl disulfide, Propyl allyl disulfide	FF-OV	9001/2/3+ 7100	0.5ppm (t) 2ppm (o) -DSEN-	N.D.	
<b>a-Alumina</b> 1344-28-1	Activated Aluminum Oxide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust, 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	t-A4
<b>Aluminum, Metal Dust</b> 7429-90-5		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust, 15mg/m <sup>3</sup> (o); Respirable dusts 5mg/m <sup>3</sup> (o); Respirable fraction 1mg/m <sup>3</sup> (t)	N.D.	T-A4
<b>Aluminum Oxide</b> 1344-28-1	(See a-Alumina)	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95			
<b>2-Aminopyridine</b> 504-29-0	a-Aminopyridine, a-Pyridylamine	OV	7100/8100	0.5ppm(t) 0.5ppm(o)	5ppm	
<b>Ammonia</b> 7664-41-7	Anhydrous ammonia, Aqua ammonia, Aqueous ammonia	AM	7400/8400 7600/8600	35ppm (s)(t); 25ppm (t) 50ppm (o)	300ppm	Must wear chemical goggles when using half mask respirator
<b>Ammonium Chloride Fume</b> 12125-02-9	Ammonium chloride, Ammonium muriate fume, Sal ammoniac fume	solids N  liquids AM/N	EZ22/EZ23N95 2200/2300N95 2600/2700N95 {water-based} 8400+8910	10mg/m <sup>3</sup> (t); 20mg/m <sup>3</sup> (s)(t)	N.D.	
<b>Ammonium Sulfamate</b> 7773-06-0	Ammate herbicide, Ammonium amidosulfonate, AMS, Monoammonium salt of sulfamic acid, Sulfamate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust, 10mg/m <sup>3</sup> (t),15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	1,500mg/m	

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>n-Amyl Acetate</b> 628-63-7	Amyl acetic ester, Amyl acetic ether, 1-Pentanol acetate, Pentyl ester of acetic acid, Primary amyl acetate	OV	7100/8100	50ppm (t) 100ppm (o) 100ppm (s)(t)	1,000ppm	Add 8940 to 8100 if Particulate is present or 7940 to 7100
<b>sec-Amyl Acetate</b> 626-38-0	1-Methylbutyl acetate, 2-Pentanol acetate, 2-Pentyl ester of acetic acid	OV	7100/8100	50ppm (t) 125ppm (o) 100ppm (s)(t)	1,000ppm	Add 8940 to 8100 if Particulate is present or 7940 to 7100
<b>Aniline (and homologs)</b> 62-53-3	Aminobenzene, Aniline oil, Benzenamine, Phenylamine	OV	7100/8100	5ppm (o) 2ppm (t) -skin-	100ppm	t-A3
<b>O-Anisidine</b> 90-04-0	ortho-Aminoanisole, 2-Anisidine, 2-Anisidine, o-Methoxyaniline [Note: o-Anisidine has been used as a basis for many dyes.]	OV/RP OV/N	7100+7940 7100+8970 7100+8910 8100+8970/8940 8100+8910	0.5mg/m <sup>3</sup> (o)(t); -skin-	50mg/m <sup>3</sup>	t-A3
<b>p-Anisidine</b> 104-94-9	para-Aminoanisole, 4-Anisidine, p-Methoxyaniline	OV/RP OV/N	7100+7940 7100+8970 7100+8910 8100+8970/8940 8100+8910	0.5mg/m <sup>3</sup> (o)(t); -skin-	50mg/m <sup>3</sup>	t-A4r
<b>Antimony* &amp; Compounds (as Sb), Dusts &amp; Mists</b> *7440-36-0		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (o)(t) {water-based mists}	50mg/m <sup>3</sup> (as Sb)	
<b>ANTU</b> 86-88-4	-Naphthyl thiocarbamide, 1-Naphthyl thiourea, -Naphthyl thiourea	OV/NRP100	7100+7940 8100+8940	0.3mg/m <sup>3</sup> (o)(t) -skin-	100mg/m <sup>3</sup>	t-A4
<b>Arsenic, Elemental &amp; Inorganic Compounds (except Arsine) (as As)</b> *7440-38-2		Multi/P	7640/ 8600/8740/ 7600/7940/ 7000, 7800, 8000 or 9000	0.01mg/m <sup>3</sup> (o)(t)	5mg/m <sup>3</sup> (as AS)	*See 29CFR1910.1018; O-Ca; t-A1; substance for which an ACGIH BEI exists
<b>Asbestos, all forms</b> 1332-21-4 12172-73-5 12001-29-5 12001-28-4		NRP100	8940/8990 7940/7990	0.1 f/cc (o)(t)*; 1.0 f/cc (s)(o) 30 minutes	N.D.	*Fiber longer than 5 um; aspect ratio > 3:1 set by 400-450 X mag. (4 mm objective) pcm. See 29CFR1910.1001 & 1926.58; A-1; O-Ca
<b>Asphalt (petroleum; Bitumen) Fume</b> 8052-42-4		OV/RP	8100+8970/8940 7100+8970/7940	0.5mg/m <sup>3</sup> (t)* Soluble aerosol as benzene (or equivalent method) inhalable particulate	N.D.	2740R95/2840R95 may be suitable for some app's. t-A4; substance for which ACGIH BEI exists
<b>Azinphos-methyl</b> 86-50-0	Guthion	OV/RP	8100+8970/8940 7100+8970/7940	0.2mg/m <sup>3</sup> (o)(t)*; -skin- -DSEN-	10mg/m <sup>3</sup>	Substance for which an ACGIH BEI exists, t-A4; *measured as inhalable fraction and vapor
<b>-B-</b>						
<b>Barium-Soluble Compounds (as Ba)</b> 7440-39-3		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (o)(t) {water-based}	50mg/m <sup>3</sup> (as Ba)	t-A4
<b>Barium Sulfate</b> 7727-43-7		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (t); 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	Total dust containing no Asbestos and <1% Crystalline Silica. *Measured as inhalable fraction of the aerosol
<b>Benzene</b> 71-43-2	Benzol, Phenyl hydride	OV	7100 8100	1ppm (o); 5ppm (s)(o); 0.5ppm (t); 2.5 (s)(t) -skin-	500ppm	t-A1. Change cartridge every shift. See table Z-2 and 29CFR1910.1028; O-Ca; 1/2 mask allowed with constant monitoring; substance for which an ACGIH BEI exists.
<b>Benzenethiol</b> 108-98-5	Mercaptobenzene, Phenyl mercaptan, Thiophenol	OV	7100 8100	0.1ppm (t) -skin-	N.D.	
<b>Benzyl Chloride</b> 100-44-7	Chloromethylbenzene, a-chlorotoluene	FF-OV/AG	9001/2/3+ 7300/7600	1ppm (o)(t)	10ppm	t-A3 Add particulate prefilter if particulate is present
<b>Benzoyl Peroxide</b> 94-36-0	Benzoperoxide, Dibenzoyl peroxide	OV/N	8100+8910 7100+8910	5mg/m <sup>3</sup> (o)(t)	1,500mg/m <sup>3</sup>	t-A4

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Beryllium &amp; Compounds (as Be)</b> 7440-41-7		NRP100	2730N100 4700N100 2360P100 4400P100 8940/8990 7940/7990	0.0005mg/m <sup>3</sup> (t) as inhalable fraction; 0.002mg/m <sup>3</sup> (o) 0.002mg/m <sup>3</sup> (s)(o) 0.025mg/m <sup>3</sup> (s)(o)*, ** 0.002mg/m <sup>3</sup> (o)** -skin- -DSEN- for soluble compounds -RSEN- for soluble and insoluble compounds	4mg/m <sup>3</sup>	t-A1; 0.001mg/m <sup>3</sup> is OSHA action level; *30min peak per 8-hr shift; **This applies to standards stayed or otherwise not in effect see 1910.1024
<b>Bismuth Telluride un-doped, as Bi<sub>2</sub>Te<sub>3</sub></b> 1304-82-1	Bismuth sesqu telluride, Bismuth telluride, Bismuth tritelluride, Tellurobismuthite	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o) 10mg/m <sup>3</sup> (t); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	t-A4
<b>Bismuth Telluride; Se-doped, as Bi<sub>2</sub>Te<sub>3</sub></b> 1304-82-1	*Doped Bismuth sesqu telluride, Doped Bismuth Telluride, Doped Tellurobismuthite	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (t)	N.D.	t-A4
<b>Boron Oxide</b> 1303-86-2	Anhydrous Boric Acid; Boric Anhydride; Boric Oxide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total Dust 15mg/m <sup>3</sup> (o); 10mg/m <sup>3</sup> (t)	2,000mg/m <sup>3</sup>	
<b>Boron Tribromide</b> 10294-33-4	Boron bromide, Tribromoborane	FF-AG	9001/2/3+ 7200	0.7ppm (c)(t)	N.D.	
<b>Boron Trifluoride</b> 7637-07-2	Boron fluoride, Trifluoroborane	FF-AG	9001/2/3+ 7200	0.7ppm (c)(t) 0.1ppm (t), 1.0ppm (c)(o)	25ppm	
<b>Bromine Pentafluoride</b> 7789-30-2	Bromine Fluoride	AG	7200/8200	0.1ppm (t)	N.D.	
<b>Bromine</b> 7726-95-6	Molecular bromine	FF-AG	9001/2/3+ 7200	0.1ppm (o)(t) 0.2ppm (s)(t)	3ppm	
<b>Bromoform</b> 75-25-2	Methyl tribromide, Tribromomethane	FF-OV	9001/2/3+ 7100	0.5ppm (o)(t) -skin-	850ppm	t-A3
<b>1,3-Butadiene</b> 106-99-0	Biethylene; Biviny Butadiene; Diviny Erythrene; Vinyl Ethylene	OV	7100 8100	1ppm (o) <sup>1,2</sup> ;2ppm (t) [5ppm (s)(o)]	2,000ppm [10% Lower explosion limit]	See OSHA 1910.1051; t-A2 1) Replace cartridge every 4 hours for concentration > 5ppm. 2) Replace cartridge every 3 hours for concentration>10ppm.
<b>2-Butanone</b> 78-93-3	Methyl Ethyl Ketone, MEK, Methyl acetone, Ethyl methyl ketone	FF-OV	9001/2/3+ 7100	200ppm (o)(t) 300ppm (s)(t)	3000ppm	Substance for which ACGIH BEI exists
<b>2-Butoxy Ethanol Acetate</b> 112-07-2	2-Butoxyethyl acetate, Butyl Cellosolve® Butyl glycol acetate, EGBEA, Ektasolve EB® Ethylene glycol monobutyl ether acetate	OV	7100 8100	20ppm (t)	N.D.	t-A3
<b>2-Butoxyethanol</b> 111-76-2	Butyl Cellosolve®, Butyl oxitol, Dowanol® EB, EGBE, Ektasolve EB®, Ethylene glycol monobutyl ether, Jeffersol EB	FF-OV	9001/2/3+ 7100	50ppm (o) 20ppm (t) -skin-	700ppm	Substance for which ACGIH BEI exists Add particulate prefilter if particulate is present; t-A3
<b>n-Butyl Acetate</b> 123-86-4	Butyl acetate, n-Butyl ester of acetic acid, Butyl ethanoate	FF-OV	9001/2/3+ 7100	150ppm (o) 50ppm (t) 150ppm (s)(t)	1700ppm [10%LEL]	Add particulate prefilter if particulate is present
<b>sec-Butyl Acetate</b> 105-46-4	sec-Butyl ester of acetic acid, 1-Methylpropyl acetate	FF-OV	9001/2/3+ 7100	200ppm (o)	1700ppm [10%LEL]	Add particulate prefilter if particulate is present
<b>tert-Butyl Acetate</b> 540-88-5	tert-Butyl ester of acetic acid	FF-OV	9001/2/3+ 7100	200ppm (o)	1500ppm [10%LEL]	
<b>Butyl Acrylate</b> 141-32-2	n-Butyl acrylate, Butyl ester of acrylic acid, Butyl-2-propenoate	OV	7100 8100	2ppm (t) -DSEN-	N.D.	t-A4
<b>n-Butyl Alcohol</b> 71-36-3	1-Butanol, n-Butanol, Butyl alcohol, 1-Hydroxybutane, n-Propyl carbinol	FF-OV	9001/2/3+ 7100	20ppm (t) 100ppm (o)	1400ppm [10%LEL]	
<b>sec-Butyl Alcohol</b> 78-92-2	2-Butanol, Butylene hydrate, 2-Hydroxybutane, Methyl ethyl carbinol	FF-OV	9001/2/3+ 7100	150ppm (o) 100ppm (t)	2000ppm	
<b>tert-Butyl Alcohol</b> 75-65-0	2-Methyl-2-propanol, Trimethyl carbinol, tert-Butanol	FF-OV	9001/2/3+ 7100	100ppm (o)(t)	1600ppm	t-A4

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>n-Butylamine</b> 109-73-9	1-Aminobutane, Butylamine	AM	7400/8400 7600/8600	5ppm (c)(o)(t) -skin-	300ppm	Not specifically approved, but better service life than O.V.
<b>n-Butyl Lactate</b> 138-22-7	Butyl ester of 2-hydroxypropanoic acid, Butyl ester of lactic acid, Butyl lactate	OV	7100 8100	5ppm (t)	N.D.	
<b>Tert-Butyl Chromate (as CrO<sub>3</sub>)</b> 1189-85-1	di-tert-Butyl ester of chromic acid	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.005mg/m <sup>3</sup> (o); 0.1mg/m <sup>3</sup> (c)(t) -skin-	15mg/m <sup>3</sup> as Cr(VI)	See 29CFR1910.1026
<b>Butyl Mercaptan</b> 109-79-5	Butanethiol, 1-Butanethiol, n-Butanethiol, 1-Mercaptobutane	OV	7100 8100	0.5ppm (t) 10ppm (o)	500ppm	
<b>o-sec-Butylphenol</b> 89-72-5	2-sec-Butylphenol, 2-(1-Methylpropyl) phenol	OV/RP	7100+8970/7940 8100+8970/8940	5ppm (t) -skin-	N.D.	
<b>p-tert-Butyltoluene</b> 98-51-1	4-tert-Butyltoluene, 1-Methyl-4-tert-butylbenzene	OV	7100/8100	1ppm (t) 10ppm (o)	100 ppm	
<b>-C-</b>						
<b>Cadmium, Dust as Cd and compounds</b> 7440-43-9	Cadmium. Other synonyms vary depending upon the specific cadmium compound	NRP100	2730N100 2360P100 4400P100 7940/7990 8940/8990	Total (inhalable) dust/particulates 0.005mg/m <sup>3</sup> (o); 0.01mg/m <sup>3</sup> (t); Respirable 0.002mg/m <sup>3</sup> (t)	9mg/m <sup>3</sup>	See 29CFR1910.1027 and Table Z-2; O-Ca; t-A2. Substance for which an ACGIH BEI exists.
<b>Cadmium, Fume</b> 1306-19-0	Cadmium monoxide, Cadmium oxide fume	NRP100	2730N100 2360P100 4400P100 7940/7990 8940/8990	Total (inhalable) dust/particulate 0.005 mg/m <sup>3</sup> (o) 0.01mg/m <sup>3</sup> (t); Respirable 0.002mg/m <sup>3</sup> (t)	9mg/m <sup>3</sup>	See 29CFR1910.1027 and Table Z-2; O-Ca; t-A2. Substance for which an ACGIH BEI exists.
<b>Calcium Arsenate</b> 7778-44-1		N100	2730N100		5mg/m <sup>3</sup> (as As)	See 29CFR1910.1018
<b>Calcium Carbonate</b> 471-34-1 1317-65-3	Calcium salt of carbonic acid [Note: Occurs in nature as limestone, chalk, marble, dolomite, aragonite, calcite & oyster shells.]	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total particulates 15mg/m <sup>3</sup> (o) Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Calcium Cyanamide</b> 156-62-7	Calcium carbimide, Cyanamide, Lime nitrogen, Nitrogen lime	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (t)	N.D.	t-A4
<b>Calcium Hydroxide</b> 1305-62-0	Calcium hydrate, Caustic lime, Hydrated lime, Slaked lime	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 5mg/m <sup>3</sup> (t), 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Calcium Oxide</b> 1305-78-8	Burned lime, Burnt lime, Lime, Pebble lime, Quick lime, Unslaked lime	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (o); 2mg/m <sup>3</sup> (t)	25mg/m <sup>3</sup>	
<b>Calcium Silicate (synthetic) (non-fibrous)</b> 1344-95-2	Calcium hydrosilicate, Calcium; metasilicate, Calcium monosilicate, Calcium salt of silicic acid	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Calcium Sulfate</b> 7778-18-9	Anhydrous Calcium Sulfate; Anhydrous gypsum; Anhydrous Sulfate of Lime; Calcium Salt of Sulfuric Acid	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o); 10mg/m <sup>2</sup> (t)*	N.D.	*Measured as inhalable fraction of the aerosol.
<b>Camphor</b> 76-22-2	2-Camphonone, Gum camphor, Laurel camphor, Synthetic camphor	FF-OV/N95	9001/2/3+ 7100+8910	2ppm (o)(t) 3ppm (s)(t)	200mg/m <sup>3</sup>	t-A4
<b>Caprolactam Vapor and Aerosol</b> 105-60-2	Aminocaproic lactam, epsilon-Caprolactam, Hexahydro-2H-azepin-2-one, 2-Oxohexamethyleneimine	OV/N	7100+8910 8100+8910	5.0mg/m <sup>3</sup> (t)*	N.D.	t-A5 *Measured as inhalable fraction and vapor
<b>Captan (Inhalable Fraction)</b> 133-06-2	Captane; N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (t) -DSEN-		t-A3
<b>Carbon Black</b> 1333-86-4	Channel Black; Lamp Black; Furnace Black; Thermal Black; Acetylene Black	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	3.5mg/m <sup>3</sup> (o)(t) 3.0mg/m <sup>3</sup> (t)*	1,750mg/m <sup>3</sup>	*Measured as inhalable fraction fraction t-A3
<b>Carbon Disulfide</b> 75-15-0	Carbon Bisulfide	OV	7100 8100	1ppm (t); 20ppm -(o); 30ppm -(c)(o); [100ppm (c)(o) 30 min. peak/8 hour shift]; -skin-	500ppm	Substance for which an ACGIH BEI exists; short service life t-A4
<b>Carbon tetrachloride</b> 56-23-5	Carbon chloride, Carbon tet, Freon® 10, Halon® 104, Tetrachloromethane	FF-OV	9001/2/3+ 7100	5ppm (t) 10ppm (t)(s) 10ppm (o) 25ppm (c)(o) 200ppm, 5 min peak in any 4h -skin-	200 ppm	t-A2



Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Catechol</b> 120-80-9	1,2-Benzenediol; o-Benzenediol; 1,2-Dihydroxybenzene; o-Dihydroxybenzene; 2-Hydroxyphenol; Pyrocatechol	OV/N	7100+8910 8100+8910	5ppm (t); -skin-	N.D.	t-A3
<b>Cellulose</b> 9004-34-6	Hydroxycellulose, Pyrocellulose	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total Dust 15 mg/m <sup>3</sup> (o), 10mg/m <sup>3</sup> (t); Respirable fraction 5mg/m <sup>3</sup> (o)		
<b>Cesium Hydroxide</b> 21351-79-1	Cesium hydrate, Cesium hydroxide dimer	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2mg/m <sup>3</sup> (t)	N.D.	
<b>Chlorine</b> 7782-50-5	Molecular chlorine	AG	7200/8200 7300/8300 7600/8600	0.1ppm (t) 0.4ppm(s)(t) 1ppm(c)(o)	10ppm	Chemical goggles required when using a half mask, t-A4
<b>Chlorine Dioxide</b> 10049-04-4	Chlorine oxide, Chlorine peroxide	AG	7200/8200 7300/8300 7600/8600	0.1ppm (t)(o); 0.3ppm (c)(t)	5ppm	Chemical goggles required when using a half mask; ACHIH NIC to 0.1ppm (t) and 1ppm (t)(c)
<b>Chloroacetaldehyde</b> 107-20-0	Chloroacetaldehyde (40% aqueous solution), 2-Chloroacetaldehyde, 2-Chloroethanal	FF-OV	9001/2/3+ 7100	1ppm (c)(t) 1ppm (c)(o) -skin-	45 ppm	
<b>Chloroacetyl Chloride</b> 79-04-9	Chloroacetic acid chloride, Chloroacetic chloride, Monochloroacetyl chloride	FF-OV/AG	9001/2/3+ 7300/7600	0.05ppm(t) 0.15ppm(s)(t) -skin-	N.D.	
<b>Chloroacetophenone</b> 532-27-4	2-Chloroacetophenone, Chloromethyl phenyl ketone, Mace®, Phenacyl chloride, Phenyl chloromethyl ketone, tear gas	FF-OV/N95	9001/2/3+ 7100+8910	0.05ppm (o)(t)	2.3ppm	t-A4
<b>Chlorobenzene</b> 108-90-7	Benzene Chloride; Chlorobenzol; MCB Monochlorobenzene; Phenylchloride	OV	7100 8100	75ppm (o); 10ppm (t)	1,000ppm	Substance for which ACGIH BEI exists; t-A3
<b>Chlorobromomethane</b> 74-97-5	Bromochloromethane; CB; CBM; Fluorocarbon 1011; Halon 1011®; Methyl chlorobromide	FF-OV	9001/2/3+ 7100	200ppm(t)(o)	2,000ppm	short service life
<b>Chlorodiphenyl (42% chlorine)</b> 53469-21-9	Aroclor® 1242, polychlorinated diphenyl, PCBs	FF-OV/N95	9001/2/3+ 7100+8910	1ppm (o)(t) -skin-	5mg/m <sup>3</sup>	
<b>Chlorodiphenyl (54% chlorine)</b> 11097-69-1	Aroclor® 1254, polychlorinated diphenyl, PCBs	FF-OV/N95	9001/2/3+ 7100+8910	0.5ppm (o)(t) -skin-	5mg/m <sup>3</sup>	t-A3
<b>2-Chloroethanol</b> 107-07-3	See Ethylene Chlorohydrin					
<b>1-Chloro-1-nitropropane</b> 600-25-9	Korax, Lanstan	FF-OV	9001/2/3+ 7100	2ppm (t) 20ppm(o)	100ppm	
<b>o-Chlorotoluene</b> 95-49-8	1-Chloro 2-Methylbenzene; 2-Chloro-1-Methylbenzene; 2-Chlorotoluene; o-Tolylchloride	OV	7100 8100	50ppm (t)	N.D.	For specific information, refer to: NIOSH Pocket Guide to Chemical Hazards
<b>Chromium, Metal (as Cr)</b> 7440-47-3		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (t)*; 1mg/m <sup>3</sup> (o)	250mg/m <sup>3</sup>	For specific information, refer to NIOSH Pocket Guide to Chemical Hazards; t-A4; *As inhalable fraction of aerosol
<b>Chromium (II) Compounds – (as Cr)</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (o)	250mg/m <sup>3</sup>	For specific information, refer to NIOSH Pocket Guide to Chemical Hazards
<b>Chromium (III) Compounds – (as Cr)</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (o) 0.003mg/m <sup>3</sup> (t)*,** DSEN,** RSEN**	25mg/m <sup>3</sup>	For specific information, refer to NIOSH Pocket Guide to Chemical Hazards; t-A4

\*\*Water soluble compounds only.  
\*Measured as inhalable Fraction of the aerosol

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comment
<b>Chromium (VI) Inorganic Compounds – Dusts; Water Soluble (as Cr)</b> Includes Chromic Acid and (see also Lead and Zinc Chromate)		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.0002mg/m <sup>3</sup> (t)*; 0.0005mg/m <sup>3</sup> (s)(t)*; 0.005mg/m <sup>3</sup> (o); as Cr(VI) 0.1mg CrO <sub>3</sub> /m <sup>3</sup> (c)(o) DSEN RSEN -skin-	15mg/m <sup>3</sup>	t-A1; Also see specific compounds. Substance for which an ACGIH BEI exists. For specific information, refer to OSHA 29CFR1910.1026 *Measured as inhalable fraction of aerosol and skin
<b>Chromium (VI) Inorganic Compounds – Certain Water Insolubles (as Cr)</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.0002mg/m <sup>3</sup> (t)*; 0.0005mg/m <sup>3</sup> (s)(t)*; 0.005mg/m <sup>3</sup> (o); as Cr(VI) DSEN RSEN	15mg/m <sup>3</sup>	t-A1; For specific information, refer to OSHA 29CFR1910.1026 *Measured as inhalable fraction of aerosol and RSEN
<b>Chromyl Chloride</b> 14977-61-8	Chlorochromic anhydride, Chromic oxychloride, Chromium chloride oxide, Chromium dichloride dioxide, Chromium dioxide dichloride, Chromium dioxychloride, Chromium oxychloride, Dichlorodioxochromium		8200/8300 8600 7200/7300 7600	0.025ppm(t) DSEN RSEN	N.D.	ACGIH NIC to 0.00025ppm (s)(t) as Cr(VI) measured as inhalable fraction and vapor; ACGIH NIC to 0.001ppm (t) as inhalable fraction and vapor; ACGIH NIC to t-A1, skin
<b>Coal Dust</b>	Anthracite coal dust, Bituminous coal dust, Lignite coal dust	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Respirable fraction .4mg/m <sup>3</sup> (t) Anthracite; .9mg/m <sup>3</sup> (t) Bituminous; or 2.4mg/m <sup>3</sup> (o)* %SiO <sub>2</sub> +2 or 10mg/m <sup>3</sup> (o)** %SiO <sub>2</sub> +2	15mg/m <sup>3</sup>	For specific information, refer to NIOSH Pocket Guide to Chemical Hazards; * <5% SiO <sub>2</sub> Resp.quartz fraction; ** >5% SiO <sub>2</sub> Resp. quartz fraction; t-A4
<b>Coal Tar Pitch Volatiles (as Benzene Solubles)</b> 65996-93-2		RP	2740R95 4300P95 2360P100 4400P100 7940/7990 8940/8990	0.2mg/m <sup>3</sup> (o)(t)	80mg/m <sup>3</sup>	Confirmed Human Carcinogen; t-A1; Substance for which ACGIH BEI exists for Polycyclic Aromatic Hydrocarbons (PAHS)
<b>Cobalt, Metal Dusts and Fumes (as Co)</b> 7440-48-4		NRP100	2730N100 2360P100 4400P100 7940/7990 8940/8990	0.1mg/m <sup>3</sup> (o)*; 0.02mg/m <sup>3</sup> (t)	20mg/m <sup>3</sup>	t-A3; substances for which an ACGIH BEI exists. *For metal dusts and fumes. ACGIH NIC to DSEN, RSEN
<b>Coke Oven Emissions</b>		RP	2740R95/8970 4300P95 4400P100 2360P100 7940/7990 8940/8990	0.15mg/m <sup>3</sup> (o) (Benzene soluble fraction)	N.D.	See 29CFR1910.1029; O-Ca
<b>Copper, Dusts and Mists (as Cu)</b> 7440-50-8		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1.0mg/m <sup>3</sup> (o)(t) {water-based mists}	100mg/m <sup>3</sup>	
<b>Copper, Fume (as Cu)</b> 7440-50-8		N	2310/2315N99 2400/2800N95	0.1mg/m <sup>3</sup> (o); 0.2mg/m <sup>3</sup> (t)	100mg/m <sup>3</sup>	
<b>Cotton Dust, (Raw) Untreated</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (t) – measured as thoracic fraction of aerosol; 1mg/m <sup>3</sup> (o) – Respirable dust is measured by vertical elutriator; Cotton Waste processing operations (of waste recycling and ginning)	100mg/m <sup>3</sup>	5x PEL maximum for disposables. See 29CFR1910.1043 for other grade of cotton If oil is present use 2740R95, 4300P95
<b>Crag Herbicide</b> 136-78-7	2-(2,4-Dichlorophenoxy)-Ethyl Sodium Sulfate, Sesone	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	15mg/m <sup>3</sup> (o) total dust; 5mg/m <sup>3</sup> (o) respirable fraction	500mg/m <sup>3</sup>	t-A4
<b>o,m,p Cresol</b> 1319-77-3 08-39-4 95-48-7 106-44-5	Cresylic Acid	OV/P	7100+7940 8100+8940	5ppm (o); 20mg/m <sup>3</sup> (t)* -skin-	250ppm	*Measured as inhalable fraction and vapor, t-A4
<b>Cristobalite</b>	(See Silica, Crystalline)					
<b>Crotonaldehyde</b> 4170-30-3	2-Butenal, β-Methyl acrolein, Propylene aldehyde	FF-OV	9001/2/3+ 7100	2ppm (o) 0.3ppm (c)(t) -skin-	50ppm	t-A3

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Cumene</b> 98-82-8	Isopropyl Benzene; 2-Phenyl Propane; Cumol	OV	7100 8100	50ppm (o)(t); -skin-	900ppm [10% Lower explosion limit]	ACHIH NIC to 0.1ppm and t-A2
<b>Cyanamide</b> 420-04-2	Amidocyanogen, Carbimide, Carbodiimide, Cyanogen nitride, Hydrogen cyanamide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2mg/m <sup>3</sup> (t)	N.D.	
<b>Cyclohexane</b> 110-82-7	Benzene hexahydride, Hexahydrobenzene, Hexamethylene, Hexanaphthene	FF-OV	9001/2/3+ 7100	300ppm (o) 100ppm (t)	1300ppm [10% LEL]	
<b>Cyclohexanol</b> 108-93-0	Hexalin; Hydralin; Hydroxycyclohexane; Anol; Hexahydrophenol; Cyclohexyl Alcohol	OV	7100 8100	50ppm (o)(t); -skin-	400ppm	Add 8970/8940/7940 if particulate is present
<b>Cyhexatin</b> 13121-70-5	TCHH, Tricyclohexylhydroxystannane, Tricyclohexylhydroxytin, Tricyclohexylstannium hydroxide, Tricyclohexyltin hydroxide	OV/N	7100+8910 8100+8910	5mg/m <sup>3</sup> (t) 0.1mg/m <sup>3</sup> (o) (as SN)	80mg/m <sup>3</sup> 25mg/m <sup>3</sup>	t-A4
<b>Cyclohexylamine</b> 108-91-8	Aminocyclohexane, Aminohexahydrobenzene, Hexahydroaniline, Hexahydrobenzenamine	FF-OV	9001/2/3+ 7100	10ppm (t)	N.D.	t-A4
<b>Cyclohexene</b> 110-83-8	Benzene Tetrahydride; Tetrahydrobenzene	OV	7100 8100	300ppm (o)(t)	2,000ppm	
<b>Cyclohexanone</b> 108-94-1	Pimelic Ketone; Cyclohexyl Ketone	OV	7100 8100	20ppm (t); 50ppm (o); -skin-	700ppm	t-A3
<b>Cyclonite</b> 121-82-4	Cyclotrimethylenetrinitramine; Hexahydro-1,3,5-trinitro-s-triazine; RDX; Trimethylenetrinitramine; 1,3,5-Trinitro-1,3,5-triazacyclohexane	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (t); -skin-	N.D.	t-A4
<b>Cyclopentadiene</b> 542-92-7	1,3-Cyclopentadiene	OV	7100 8100	75ppm (o)(t)	750ppm	Short service life
<b>-D-</b>						
<b>2,4-D</b> 94-75-7	2,4-Dichlorophenoxyacetic acid, Dichlorophenoxyacetic acid	OV/NRP100	7100+7940 8100+8940	10mg/m <sup>3</sup> (o); 10mg/m <sup>3</sup> (t) inhalable fraction -skin-	100mg/m <sup>3</sup>	t-A4
<b>Diacetone Alcohol</b> 123-42-2	4-hydroxy-4 methyl-2 pentanone, Diacetone, 2-Methyl-2-pentanol-4-one	FF-OV	9001/2/3+ 7100	50ppm (o)(t)	1800ppm [10% LEL]	
<b>Diatomaceous earth (uncalcined Silica-amorphous)</b> 61790-53-2	(See Silica)					
<b>Dibutyl phthalate</b> 84-74-2	DBP; Dibutyl-1,2-Benzene dicarboxylate; Di-n-butylphthalate	OV/RP	7100+8970/7940 8100+8970/8940	5mg/m <sup>3</sup> (o)(t)	4,000mg/m <sup>3</sup>	
<b>Dibutyl phosphate</b> 107-66-4	Dibutyl Acid-o-Phosphate; Di-n-Butyl Hydrogen Phosphate; Dibutyl Phosphoric Acid	OV/RP	7100+8970/7940 8100+8970/8940	1ppm (o); 0.6 (t) measured as inhalable fraction and vapor	30ppm	
<b>1,2-Dichloroethylene</b> 156-59-2; 156-60-5; 540-59-0	Acetylene dichloride; cis-Acetylene dichloride; trans-Acetylene dichloride; sym-Dichloroethylene	FF-OV	9001/2/3+ 7100	200ppm(t)(o)	1000ppm	short service life
<b>1,1-Dichloro-1-Nitroethane</b> 594-72-9	Dichloronitroethane	OV	7100/8100	2ppm(t) 10ppm(c)(o)	25 ppm	
<b>1,3-Dichloropropene</b> 542-75-6	Bicyclopentadiene; DCPD; 1,3-Dicyclopentadiene dimer; 3a,4,7,7a-Tetrahydro-4,7-methanoindene	FF-OV	7100+ 90001/2/3	1ppm(t) -skin-	N.D.	t-A3
<b>2,2-Dichloropropionic Acid</b> 75-99-0	Dalapon; 2,2-Dichloropropanoic acid; a,a-Dichloropropionic acid	FF-OV/N95	9001/2/3+ 7100 and 8910	5ppm(t)*	N.D.	t-A4 *measured as inhalable fraction of the aerosol
<b>1,3-Dichloro-5,- 5-Dimethylhydantoin</b> 118-52-5	Dactin; DDH; Halane	OV/N	7100+8910 8100+8910	0.2mg/m <sup>3</sup> (o)(t); 0.4mg/m <sup>3</sup> (s)(t)	5mg/m <sup>3</sup>	
<b>o-Dichlorobenzene</b> 95-50-1	o-DCB; 1,2-Dichlorobenzene; ortho- Dichlorobenzene; Dichlorocide	FF-OV	9001/2/3+ 7100	25ppm (t) 50ppm (c)(o)	200ppm	t-A4 Add particulate prefilter if particulate is present

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>p-Dichlorobenzene</b> 106-46-7	p-DCB; 1,4-Dichlorobenzene; para-Dichlorobenzene; Dichlorocide	FF-OV/N95	9001/2/3+ 7100/8910	10ppm (t) 75ppm (o)	150ppm	t-A3
<b>Dichloroethyl ether</b> 111-44-4	bis(2-Chloroethyl)ether; 2,2'-Dichlorodiethyl ether, 2,2'-Dichloroethyl ether	FF-OV	9001/2/3+ 7100	5ppm (t) [10ppm (s)(t)] [15ppm (o)(c)] -skin-	100ppm	t-A4
<b>1,2 Dichloropropane</b> 78-87-5	(See Propylene Dichloride)					
<b>Dicyclopentadiene</b> 77-73-6	Bicyclopentadiene; DCPD; 1,3-Dicyclopentadiene dimer; 3a,4,7,7a-Tetrahydro-4,7-methanoindene	OV/N	7100+8910 8100+8910	5ppm (t)	N.D.	ACGIH NIC to 0.5ppm(t) and 1ppm (s)(t) including Cyclopentadiene Cas: 542-92-7
<b>Dicyclopentadienyl Iron</b> 102-54-5	bis-Cyclopentadienyl Iron; Ferrocene	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t); Total Dust-15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Diethanolamine</b> 111-42-2	DEA; Di(2-hydroxyethyl)amine; 2,2'-Dihydroxydiethylamine; Diolamine; bis(2-Hydroxyethyl)amine; 2,2'-Iminodiethanol	OV	7100 8100	0.2 (t)*; -skin-	N.D.	Add 8970/8940/7940 if particulate is present. *Measured as inhalable fraction and vapor
<b>Diethylamine</b> 109-89-7	Diethamine; N,N-Diethylamine; N-Ethylanamine	FF-OV	9001/2/3+ 7100	5ppm (t) 15ppm (s)(t) 25ppm-(o) -skin-	200ppm	t-A4
<b>2-Diethylaminoethanol</b> 100-37-8	Diethylaminoethanol; 2-Diethylaminoethyl alcohol; N,N-Diethylethanolamine; Diethyl-(2-hydroxyethyl)amine; 2-Hydroxytriethylamine	OV	7100 8100	10ppm (o); 2ppm (t); -skin-	100ppm	Short service life
<b>Diethyl Ether</b> 60-29-7	(See Ethyl Ether)					
<b>Diethyl Ketone</b> 96-22-0	DEK, Dimethylacetone, Ethyl ketone, Metacetone, 3-Pentanone, Propione	OV	7100 8100	200ppm (t) 300ppm (s)(t)	N.D.	
<b>Diethylenetriamine</b> 111-40-0	N-(2-Aminoethyl)-1,2-ethanediamine; bis(2-Aminoethyl)amine; DETA; 2,2'-Diaminodiethylamine	FF-OV	9001/2/3+ 7100	1ppm(t) -skin-	N.D.	
<b>1,1-Dimethylhydrazine</b> 57-14-7	Dimzine; DMH; UDMH; Unsymmetrical dimethylhydrazine	FF-AM	9001/2/3+ 7400	0.01ppm(t) 0.5ppm(o) -skin-	15ppm	t-A3
<b>Diglycidyl Ether</b> 2238-07-5	Diallyl ether dioxide; DGE; Di(2,3-epoxypropyl) ether; 2-Epoxypropyl ether; bis(2,3-Epoxypropyl) ether	FF-OV	9001/2/3+ 7100	0.01ppm(t) 0.5ppm(c)(o)	10 ppm	t-A4
<b>Diethyl Phthalate</b> 84-66-2	Ethylphthalate; DEP	RP	2360P100 4300P95 4400P100 2740R95/8970 7940/7990 8940/8990	5mg/m <sup>3</sup> (t)	N.D.	t-A4
<b>Diisobutyl Ketone</b> 108-83-8	DIBK; sym-Diisopropyl acetone; 2,6-Dimethyl-4-hepanone; Isovalerone; Valerone	FF-OV	9001/2/3+ 7100	25ppm (t) 50ppm (o)	500ppm	Add particulate prefilter if particulate is present
<b>Diisopropylamine</b> 108-18-9	DIPA, N-(1-Methylethyl)-2-propanamine	FF-OV	9001/2/3+ 7100	5ppm (o)(t) -skin-	200ppm	
<b>Dimethylamino Benzene</b> 1300-73-8	(See Xylidine)					
<b>Dimethylamine</b> 124-40-3	Dimethylamine (anhydrous), N-Methylmethanamine	AM	7400 8400	5ppm (t); 10ppm (o); 15ppm (s)(t) -DSEN-	500ppm	AM not specifically approved & short OV service life; t-A4;
<b>Dimethylaniline</b> 121-69-7	N,N-Dimethylbenzeneamine; N,N-Dimethylphenylamine	OV	7100 8100	5ppm (o)(t); 10ppm (s)(t); -skin-	100ppm	Substance for which an ACGIH BEI exists, t-A4
<b>Dimethyl-1,2-Dibromo-2,2-Dichloroethyl Phosphate</b> 300-76-5	Dibrom®; 1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate; Naled	N	2310/2315N99 2400/2800N95	3mg/m <sup>3</sup> (o); 0.1mg/m <sup>3</sup> (t) -skin- -DSEN-	200mg/m <sup>3</sup>	Substance for which an ACGIH BEI (Acetyl-Cholinesterase Inhibiting Pesticide) exists, t-A4; *Inhalable fraction & vapor/ aerosol

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Dimethylphthalate</b> 131-11-3	Dimethyl ester of 1,2-benzenedicarboxylic acid; DMP	OV/RP	7100+8970/7940 8100+8970/8940	5mg/m <sup>3</sup> (o)(t)	2,000mg/m <sup>3</sup>	
<b>Dinitrobenzene (All Isomers)</b> 100-25-4; 528-29-0; 99-65-0	o-Dinitrobenzene; 1,2-Dinitrobenzene; m-Dinitrobenzene; 1,3-Dinitrobenzene; p-Dinitrobenzene; 1-4-Dinitrobenzene	OV/N	7100+8910 8100+8910	1mg/m <sup>3</sup> (o)(t); -skin-	50mg/m <sup>3</sup>	Substance for which an ACGIH BEI exists (Methemoglobin Inducer) exists. ACGIH NIC to 1mg/m <sup>3</sup> measured as inhalable fraction and vapor
<b>Dinitro-o-Cresol</b> 534-52-1	4,6-Dinitro-o-cresol; 3,5-Dinitro-2-hydroxytoluene; 4,6-Dinitro-2-methyl phenol; DNC; DNOC	FF-P100	9001/2/3+ 7990 or 7940	0.2mg/m <sup>3</sup> (o)(t); -skin-	5mg/m <sup>3</sup>	ACGIH NIC to 0.2mg/m <sup>3</sup> measured as inhalable fraction and vapor
<b>Dinitolmide</b> 148-01-6	3,5-Dinitro-o-toluamide; 2-Methyl-3,5-dinitrobenzamide; Zoalene	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (t)	N.D.	t-A4
<b>Dinitrotoluene</b> 25321-14-6	Dinitroluol; DNT; Methyl dinitrobenzene	OV/P100	7100+7940 8100+8940	1.5mg/m <sup>3</sup> (o); 0.2mg/m <sup>3</sup> (t); -skin-	50mg/m <sup>3</sup>	Substance for which an ACGIH BEI (Methemoglobin Inducer) exists; t-A3
<b>1,4-Dioxane</b> 123-91-1	Diethylene dioxide; Diethylene ether; Dioxan; p-Dioxane; 1,4-Dioxane	OV	7100 8100	20ppm (t);100ppm (o) -skin-	500ppm	t-A3
<b>Dipropyl Ketone</b> 123-19-3	Butyrene, DPK, 4-Heptanone, Heptan-4-one, Propyl ketone	OV	7100/8100	50ppm(t)	N.D.	
<b>Diphenyl</b> 92-52-4	Biphenyl, Phenylbenzene	OV/N	8100+8910 7100+8910	0.2ppm (o)(t)	100mg/m <sup>3</sup>	
<b>Diphenylamine</b> 122-39-4	Anilinobenzene, DPA, Phenylaniline, N-Phenylaniline, N-Phenylbenzenamine	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t)	N.D.	May want to use 2400N95, 2800N95 or 4800N95 if odor is a nuisance, t-A4
<b>Di-sec-octylphthalate</b> 117-81-7	DOP,bis-(2-Ethylhexyl) Phthalate; Di-2-Ethylhexyl Phthalate; DEHP	RP	2740R95, 4300P95, 4400P100, 7940/7990, 8970/8940/8990	5mg/m <sup>3</sup> (o)(t);	5,000mg/m <sup>3</sup>	ACGIH NIC to delete STEL; t-A3
<b>2,6-Di-tert-butyl-p-cresol</b> 128-37-0	BHT; Butylated hydroxytoluene; Dibutylated hydroxytoluene; 4-Methyl-2,6-di-tert-butyl phenol	FF-OV/N95	9001/2/3+ 7100+8910	2mg/m <sup>3</sup> (t) *	N.D.	*Measured as inhalable fraction and vapor; t-A4
<b>1-Dodecanethiol</b> 112-55-0	Dodecyl mercaptan, 1-Dodecyl mercaptan, n-Dodecyl mercaptan, Lauryl mercaptan, n-Lauryl mercaptan, 1-Mercaptododecane	OV	7100 8100	0.1ppm (t)	N.D.	R or P filter may be needed with oily aerosols
<b>-E-</b>						
<b>Emery</b> 1302-74-5	Aluminum oxide, Aluminum trioxide, Corundum, Impure corundum, Natural aluminum oxide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total Dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Endrin</b> 72-20-8	Hexadrin®, 1,2,3,4,10,10-Hexachloro-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene	OV/NRP100	7100+7940 8100+8940	0.1mg/m <sup>3</sup> (o)(t); -skin-	2mg/m <sup>3</sup>	t-A4
<b>Epichlorhydrin</b> 106-89-8	1-Chloro-2,3-epoxypropane; 2-Chloropropylene oxide; γ-Chloropropylene oxide	FF-OV	9001/2/3+ 7100	0.5ppm(t) 5ppm(o) -skin-	75ppm	t-A3
<b>Epoxies</b>	(See Specific Compounds)					
<b>Ethanolamine</b> 141-43-5	Ethylolamine; Monoethanolamine; B-Aminoethyl alcohol; 2-Aminoethanol; 2-Hydroxyethylamine	OV	7100 8100	3ppm (o)(t); 6ppm (s)(t)	30ppm	
<b>2-Ethoxyethanol</b> 110-80-5	Cellosolve®, EGEE, Ethylene glycol monoethyl ether	OV	7100 8100	5ppm (t); 200ppm (o); -skin-	500ppm	Substances for which ACGIH BEI exists
<b>2-Ethoxyethyl acetate</b> 111-15-9	Cellosolve® acetate, EGEEA, Ethylene glycol monoethyl ether acetate, Glycol monoethyl ether acetate	OV	7100 8100	100ppm (o); 5ppm (t); -skin-	500ppm	Substances for which ACGIH BEI exists
<b>Ethyl Acetate</b> 141-78-6	Acetic ester, Acetic ether, Ethyl ester of acetic acid, Ethyl ethanoate	FF-OV	9001/2/3+ 7100	400ppm (o)(t)	2000ppm [10% LEL]	
<b>Ethyl Acrylate</b> 140-88-5	Ethyl acrylate (inhibited), Ethyl ester of acrylic acid, Ethyl propenoate	FF-OV	9001/2/3+ 7100	5ppm (t) 15ppm (s)(t) 25ppm (o) -skin-	300ppm	t-A4
<b>Ethylamine</b> 75-04-7	Aminoethane, Ethylamine (anhydrous), Monoethylamine	FF-OV	9001/2/3+ 7100	5ppm (t); 15ppm (s)(t); 10ppm (o) -skin-	600ppm	

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Ethyl Benzene</b> particulate	Phenylethane; Ethylbenzol 100-41-4	OV	7100 8100	20ppm (t); 8100	800ppm 100ppm (o);	Add 8940 or 7940 if [10% Lower is present. Substance explosion limit] for which a t-A3; ACGIH BEI exists
<b>Ethyl Butyl Ketone</b> 106-35-4	Butyl ethyl ketone, 3-Heptanone	OV	7100 8100	50ppm (o)(t); 75ppm (s)(t)	1,000ppm	Add 8940 or 7940 if particulate is present
<b>Ethylene Chlorohydrin</b> 107-07-3	2-Chloroethanol; 2-Chloroethyl Alcohol	OV	7100 8100	5ppm (o) 1ppm (c)(t); -skin-	7ppm	t-A4
<b>Ethylene Diamine</b> 107-15-3	1,2-Diaminoethane; 1,2-Ethanediamine; Ethylenediamine (anhydrous)	FF-OV	9001/2/3+ 7100	10ppm (o)(t) -skin-	1000ppm	t-A4
<b>Ethylene Dibromide</b> 106-93-4	1,2-Dibromoethane; Ethylene bromide; Glycol dibromide, EDB	FF-OV	9001/2/3+ 7100	20ppm (o) 30ppm (c)(o) 50ppm 5 minute peak per 8-hr shift -skin-	100ppm	t-A3
<b>Ethylene Glycol, Aerosol</b> 107-21-1	Ethylene Alcohol; Glycol; 1,2-Ethandiol	OV/N	7100+8910 8100+8910	25ppm (t)* 50ppm (s)(t)* 10mg/m <sup>3</sup> **	N.D.	*Vapor fraction **Measured as inhalable fraction of the aerosol, t-A4
<b>Ethyl Ether</b> 60-29-7	Diethyl ether, Diethyl oxide, Ethyl oxide, Ether, Solvent ether	OV	7100 8100	400ppm (o)(t); 500ppm (s)(t)	1,900ppm [10% Lower explosion limit]	Short service life;
<b>Ethyl Formate</b> 109-94-4	Ethyl ester of formic acid, Ethyl methanoate	FF-OV	9001/2/3+ 7100	100ppm (o) 100ppm (t)	1500ppm	t-A4 Short service life
<b>Ethylidene Norbornene</b> 16219-75-3	ENB, 5-Ethylidenebicyclo(2.2.1)hept- 2-ene, 5-Ethylidene-2-norbornene	FF-OV	9001/2/3+ 7100	2ppm (t) 4ppm (s)(t)	N.D.	
<b>Ethylene Dichloride</b> 107-06-2	1,2-Dichloroethane; Ethylene chloride; Glycol dichloride	OV	7100/8100	10ppm(t) 50ppm(o) 100ppm(c)(o) 200ppm 5 min peak in any 3 hrs	50 ppm	t-A4
<b>Ethyl Mercaptan</b> 75-08-1	Ethanethiol, Ethyl sulfhydrate, Mercaptoethane	OV	7100 8100	0.5ppm (t); 10ppm (c)(o)	500ppm	
<b>n-Ethylmorpholine</b> 100-74-3	4-Ethylmorpholine	FF-OV	9001/2/3+ 7100	5ppm (t) 20ppm (o) -skin-	100ppm	
<b>Ethyl Silicate</b> 78-10-4	Ethyl orthosilicate, Ethyl silicate (condensed), Tetraethoxysilane, Tetraethyl orthosilicate, Tetraethyl silicate	OV	7100 8100	10ppm (t) 100ppm (o)	700ppm	
<b>-F-</b>						
<b>Ferbam</b> 14484-64-1	tris(Dimethyldithiocarbamato)iron, Ferric dimethyl dithiocarbamate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o) 5mg/m <sup>3</sup> (t)*	800mg/m <sup>3</sup>	t-A4 *Measured as inhalable fraction of the aerosol
<b>Ferrovandium Dust</b> 12604-58-9		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (o)(t); 3mg/m <sup>3</sup> (s)(t)	500mg/m <sup>3</sup>	
<b>Fibrous Glass Dust</b>	Fiber glas®, Fiberglass, Glass fibers, Glass wool	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total 15mg/m <sup>3</sup> (o); respirable fraction 5mg/m <sup>3</sup> (o)		
<b>Flourides (as F)</b>	(See Specific Compound)					
<b>Formaldehyde</b> 50-00-0	Methanal, Methyl aldehyde, Methylene oxide; Formalin	FORM	7500/7600 8500/8600	0.75ppm (o); 0.1ppm (t); 2ppm (s)(o) 0.3ppm (c)(t) -DSEN- -RSEN-	20ppm	See 29CFR1910.1048; O-Ca; Dispose of cartridges at the end of each work shift; wear gas-proof goggles with half-mask. Do not use same cartridge for any other gases or vapors;
<b>Formamide</b> 75-12-7	Carbamide; Methanamide	OV	7100/8100	10ppm(t) -skin-	N.D.	
<b>Fufural</b> 98-01-1	Fural, 2-Furancarboxaldehyde, Furfuraldehyde,2-Furfuraldehyde	FF-OV	9001/2/3+ 7100	0.2ppm (t) 5ppm (o) -skin-	100ppm	t-A3 Substance for which ACGIH BEI exists;

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Furfuryl Alcohol</b> 98-00-0	2-Furylmethanol, 2-Hydroxymethylfuran	FF-OV	9001/2/3+ 7100	0.2ppm (t) 50ppm (o) -skin-	75ppm	Add particulate prefilter if particulate is present
<b>-G-</b>						
<b>Gasoline</b> 8006-61-9	Motor fuel, Motor spirits, Natural gasoline, Petrol [Note: A complex mixture of volatile hydrocarbons (paraffins, cycloparaffins & aromatics).]	FF-OV	9001/2/3+ 7100	300ppm (t) 500ppm (s)(t) Bulk handling	N.D.	t-A3
<b>Glutaraldehyde</b> 111-30-8	Glutaric Dialdehyde; 1,5-Pentanedial	FF-OV	9001/2/3+ 7100	0.05ppm (c)(t)* -DSEN- -RSEN-	N.D.	t-A3 Add particulate prefilter if particulate is present *Activated or inactivated t-A3
<b>Glycerin, Mist</b> 56-81-5	Glycerin (anhydrous); Glycerol; Glycyl alcohol; 1,2,3-Propanetriol; Trihydroxypropane	RP	2740R95/ 4300R95/ 4400P100/ 7940/7990/ 8940/8990/8970	Total dust 15mg/m <sup>3</sup> (o), Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Glycidol</b> 556-52-5	2,3-Epoxy-1-propanol; Epoxypropyl alcohol; Glycide; Hydroxymethyl ethylene oxide; 2-Hydroxymethyl oxiran; 3-Hydroxypropylene oxide	OV	7100/8100	2ppm(t) 50ppm(o)	150ppm	t-A3
<b>Glycol monoethyl Ether</b> 110-80-5	(See 2-Ethoxyethanol)					
<b>Grain Dust (Oat, Wheat, Barley)</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	4mg/m <sup>3</sup> (t)*; 10mg/m <sup>3</sup> (o)	N.D.	*Inhalable dust
<b>Gypsum &amp; Plaster of Paris</b> 13397-24-5 26499-65-0	Calcium(II) sulfate dihydrate, Gypsum stone, Hydrated calcium sulfate, Mineral white, Calcium Sulfate Hemihydrate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust, 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Graphite (Natural)</b> 7782-42-5	Black lead, Mineral carbon, Plumbago, Silver graphite, Stove black	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2.0mg/m <sup>3</sup> (t)* (all forms except graphite fibers); 15MPPCF(o)**	1,250mg/m <sup>3</sup>	*Respirable particulate fraction, **based on impinger samples counted by light field techniques
<b>Graphite (Synthetic) (all forms except fibers)</b> 7440-44-0	Acheson graphite, Artificial graphite	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o); 2.0mg/m <sup>3</sup> (t)*	N.D.	*All forms except graphite fibers; Respirable particulate fraction
<b>-H-</b>						
<b>Hafnium &amp; Compounds, Dusts &amp; Mists</b> 7440-58-6	Celtium; Elemental Hafnium; Hafnium metal	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (o)(t)	50mg/m <sup>3</sup> (as Hf)	
<b>n-Heptane</b> 142-82-5	Normal heptane; n-heptane	OV	7100 8100	400ppm (t); 500ppm -(o) 500ppm (s)(t)	750ppm	
<b>2-Heptanone</b> 110-43-0	(See Methyl n-amyl ketone)					
<b>3-Heptanone</b> 106-35-4	(See Ethyl butyl ketone)					
<b>Hexachlorobutadiene</b> 87-68-3	HCBD; Hexachloro-1,3-butadiene; 1,3-Hexachlorobutadiene; Perchlorbutadiene	FF-OV	9001/2/3+ 7100	0.02ppm(t) -skin-	N.D.	t-A3
<b>Hexachlorocyclopentadiene</b> 77-47-4	HCCPD; Hexachloro-1,3-cyclopentadiene; 1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene; Perchlorocyclopentadiene	FF-OV	9001/2/3+ 7100	0.01ppm(t)	N.D.	t-A4
<b>Hexachloroethane</b> 67-72-1	Perchloroethane	OV/N	7100+8910 8100+8910	1ppm (o)(t); -skin-	300ppm	t-A3
<b>Hexachloronaphthalene</b> 1335-87-1	Halowax 1014	OV/N	7100+8910 8100+8910	0.2mg/m <sup>3</sup> (o)(t); -skin-	2mg/m <sup>3</sup>	
<b>n-Hexane</b> 110-54-3	Hexane, Hexyl hydride, normal-Hexane	OV	7100 8100	50ppm (t); 500ppm (o); -skin-	1100ppm [10% lower explosion limit]	Substance for which ACGIH BEI exists

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>2-Hexanone</b> 591-78-6	Butyl methyl ketone, MBK, Methyl butyl ketone, Methyl n-butyl ketone	OV	7100 8100	5ppm (t);100ppm (o); 10ppm (s)(t); -skin-	1,600ppm	
<b>Hexone</b> 108-10-1	Methyl Isobutyl Ketone, Isobutyl methyl ketone, 4-Methyl 2-pentanone, MIBK	FF-OV	9001/2/3+ 7100	20ppm (t) 100ppm (o) 75ppm (s)(t)	500ppm	t-A3 Substance for which ACGIH BEI exists
<b>sec-Hexyl acetate</b> 108-84-9	1,3-Dimethylbutyl acetate; Methylisoamyl acetate	FF-OV	9001/2/3+ 7100	50ppm (o) (t)	500ppm	Add particulate prefilter if particulate is present
<b>Hexylene glycol</b> 107-41-5	2,4-Dihydroxy-2-methylpentane; 2-Methyl-2,4-pentanediol; 4-Methylpentane-2,4-diol	FF-OV	9001/2/3+ 7100	25ppm (t)* 50ppm (s)(t)* 10ppm**	N.D.	*Vapor fraction **Aerosol only, measured as inhalable fraction of aerosol
<b>Hydrogen Bromide</b> 10035-10-6	Hydrobromic acid, Anhydrous hydrogen bromide; Aqueous hydrogen bromide	AG	7200 8200	3ppm (o) 2ppm (c)(t)	30ppm	
<b>Hydrogen Chloride</b> 7647-01-0	Hydrochloric acid (when in aqueous form)	AG	7200 8200	2ppm (c)(t) 5ppm (c)(o)	50ppm	t-A4
<b>Hydrogen Fluoride (as F)</b> 7664-39-3	Anhydrous hydrogen fluoride; Aqueous hydrogen fluoride (i.e., Hydrofluoric acid); HF-A	FF-AG	9001/2/3+ 7200/7300/ 7600	0.5ppm (t)* 2ppm (c)(t)* 3ppm (o)** *as F, -skin-	30ppm	Substance for which ACGIH BEI exists
<b>Hydrogen Sulfide</b> 7783-06-4	Sulfuretted Hydrogen; Hydrosulfuric Acid; Hepatic Gas; Sewer Gas	AG	7200 8200	1ppm (t); 5ppm (s)(t); 20ppm (c)(o); [50ppm 10 min peak/ 8 hr shift] (c)(o)	100ppm	Escape only; Poor warning; Olfactory fatigue; (t)
<b>Hydrogenated Terphenyls</b> 61788-32-7	Hydrogenated diphenylbenzenes, Hydrogenated phenylbiphenyls, Hydrogenated triphenyls	RP	2740R95 2360P100 4300P95 4400P100 7940/7990 8940/8970/8990	0.5ppm (t)	N.D.	
<b>Hydroquinone</b> 123-31-9	p-Benzenediol; 1,4-Benzenediol; Dihydroxybenzene; 1,4- Dihydroxybenzene; Quinol	FF-OV/N95	9001/2/3+ 7100+8910	1mg/m <sup>3</sup> (t) 2mg/m <sup>3</sup> (o) -DSEN-	50mg/m <sup>3</sup>	t-A3
<b>Hydrazine</b> 302-01-2	Diamine; Hydrazine (anhydrous); Hydrazine base	FF-AM	9001/2/3+ 7400	0.01ppm(t) 1ppm(o) -skin-	50ppm	t-A3
<b>2-Hydroxypropyl Acrylate</b> 999-61-1	HPA, b-Hydroxypropyl acrylate, Propylene glycol monoacrylate	OV	7100/8100	0.5ppm(t) -skin- DSEN	N.D.	
<b>- -</b>						
<b>Indium, Dusts</b> 7440-74-6	Indium Metal	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (t) {water soluble}	N.D.	
<b>Iron Oxide, Dust &amp; Fume (as Fe)</b> 1309-37-1	Ferric oxide, Iron(III) oxide	N	2310/2315N99 2400/2800N95	5mg/m <sup>3</sup> (t)*, 10mg/m <sup>3</sup> (o)	2,500mg/m <sup>3</sup> (as Fe)	t-A4, *Measured as resperable fraction of aerosol
<b>Iron Salts, Soluble (as Fe)</b>	FeSO <sub>4</sub> : Ferrous sulfate, Iron(II) sulfate; FeCl <sub>2</sub> : Ferrous chloride, Iron(II) chloride; Fe(NO <sub>3</sub> ) <sub>3</sub> : Ferric nitrate, Iron(III) nitrate; Fe(SO <sub>4</sub> ) <sub>3</sub> : Ferric sulfate, Iron(III) sulfate; FeCl <sub>3</sub> : Ferric chloride, Iron (III) chloride	N	EZ22/EZ23N95 2200/2300N95 2400/2800N95	1mg/m <sup>3</sup> (t)	N.D.	
<b>Isoamyl Acetate</b> 123-92-2	Banana oil, Isopentyl acetate, 3-Methyl-1-butanol acetate, 3-Methylbutyl ester of acetic acid, 3-Methylbutyl ethanoate	OV	7100 8100	100ppm (o) 50ppm (t) 100ppm (s)(t)	1,000ppm	Add 8910 if particulate is present.
<b>Isoamyl Alcohol Primary and Secondary</b> 123-51-3 6032-29-7	Primary fermentation amyl alcohol, Fusel oil, Isobutyl carbinol, Isopentyl alcohol, 3-Methyl-1-butanol, Primary isoamyl alcohol; Secondary 3-Methyl-2-butanol, Secondary isoamyl alcohol	FF-OV	9001/2/3+ 7100	100ppm (o)(t) 125ppm (s)(t)	500ppm	Add particulate prefilter if particulate is present
<b>N-Isopropylaniline</b> 768-52-5	N-IPA; Isopropylaniline; N-(1-Methylethyl)-benzenamine; N-Phenylisopropylamine	OV	7100/8100	2ppm(t) -skin-		Substance for which an ACGIH BEI exists



Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Isobutyl Acetate</b> 110-19-0	Isobutyl ester of acetic acid, 2-Methylpropyl acetate, 2-Methylpropyl ester of acetic acid, β-Methylpropyl ethanoate	FF-OV	9001/2/3+ 7100	150ppm (o)	1300ppm [10% LEL]	
<b>Isobutyl Alcohol</b> 78-83-1	IBA, Isobutanol, Isopropylcarbinol, 2-Methyl-1-propanol	FF-OV	9001/2/3+ 7100	50ppm (t) 100ppm (o)	1600ppm	
<b>Isooctyl Alcohol</b> 26952-21-6	Isoctacol; Oxoocetyl Alcohol	OV	7100/8100	50ppm(t) -skin-	N.D.	
<b>Isophorone</b> 78-59-1	Isoacetophorone; 3,5,5-Trimethyl-2-cyclohexenone; 3,5,5-Trimethyl-2-cyclo-hexen-1-one	OV	7100 8100	25ppm (o); 5ppm (c)(t)	200ppm	Add 8910 if particulate is present; t-A3
<b>2-Isopropoxy-Ethanol</b> 109-59-1	Ethylene glycol isopropyl ether, -Hydroxyethyl isopropyl ether, Isopropyl Cellosolve®, Isopropyl	OV	7100 8100	25ppm (t); -skin-	N.D.	
<b>Isopropyl Alcohol</b> 67-63-0	Dimethyl carbinol, IPA, Isopropanol, 2-Propanol, sec-Propyl alcohol, Rubbing Alcohol	FF-OV	9001/2/3+ 7100	400ppm (o) 200ppm (t) 400 (s)(t)	2000ppm [10% LEL]	Substance for which ACGIH BEI exists; t-A4
<b>Isopropyl Acetate</b> 108-21-4	Isopropyl ester of acetic acid, 1-Methylethyl ester of acetic acid, 2-Propyl acetate	FF-OV	9001/2/3+ 7100	250ppm (o)	1800ppm	
<b>Isopropyl Amine</b> 75-31-0	2-aminopropane, monoisopropylamine, 2-propylamine, sec-propylamine	FF-OV	9001/2/3+ 7100	5ppm (o) (t) 10ppm (s)(t)	750ppm	
<b>Isopropyl Ether</b> 108-20-3	Diisopropyl ether, Diisopropyl oxide, 2-Isopropoxy propane	OV	7100 8100	500ppm (o); 250ppm (t); 310ppm (s)(t)	1,400ppm; [10% Lower explosion limit]	
<b>Isopropyl Glycidyl Ether</b> 4016-14-2	1,2-Epoxy-3-Isopropoxypropane; IGE; Isopropoxymethyl oxirane	FF-OV	9001/2/3+ 7100	50ppm (o)(t); 75ppm (s)(t)	400ppm	
<b>-K-</b>						
<b>Kaolin</b> 1332-58-7	China Clay; Aluminum Silicate	N	EZ22/EZ23N95 2200/2300N95 2600/2800N95	Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o), 2mg/m <sup>3</sup> (t)		t-A4, Particulate containing no Asbestos and <1% Crystalline Silica. Does not include stearates of toxic metals
<b>Kerosene</b> 8008-20-6		OV/RP	7100+ 8970/7940 8100+ 8970/8940	200ppm (t) as total Hydrocarbon vapor -skin-		t-A3, avoid prolonged and repeated skin contact
<b>-L-</b>						
<b>Lacquer Thinner</b>	(See Specific Ingredients)					
<b>Lead, Metal* and Inorganic Compounds (Dust and Fume)</b> 7439-92-1	Lead metal, Plumbum	NRP100	2730N100 2360P100 4400P100 7940/7990 8940/8990	0.05mg/m <sup>3</sup> (o)(t)	100mg/m <sup>3</sup> (as Pb)	See 29CFR1910.1025 t-A3, Substance for which an ACGIH BEI exists; 29CFR1910.62 Construction standard
<b>Limestone</b> 1317-65-3	Calcium carbonate, Natural calcium carbonate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o), Respirable fraction 5mg/m <sup>3</sup> (o)		
<b>Lindane</b> 58-89-9	BHC; HCH; -Hexachlorocyclohexane; gamma isomer of 1,2,3,4,5,6-Hexachlorocyclohexane	OV/NRP100 R95/P100	7100+ 8970/7940 8100/8940 8970/8940	0.5mg/m <sup>3</sup> (o)(t); -skin-	50mg/m <sup>3</sup>	t-A3
<b>Lithium Hydride</b> 7580-67-8	Lithium monohydride	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.025mg/m <sup>3</sup> (o) 0.05 (c)(t)*	0.5mg/m <sup>3</sup>	*Measured as inhalable fraction of the aerosol
<b>-M-</b>						
<b>Magnesite</b> 546-93-0	Carbonate magnesium, Hydromagnesite, Magnesium carbonate, Magnesium(II) carbonate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Magnesium Oxide Fume</b> 1309-48-4	Magnesia Fume	N	2310/2315N99	15mg/m <sup>3</sup> (o)** 10mg/m <sup>3</sup> (t)*	750mg/m <sup>3</sup>	*Measured as inhale fraction of the aerosol t-A4 **Total particulate fume

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Malathion</b> 121-75-5	S-[1,2-bis(ethoxycarbonyl) ethyl]O, O-dimethyl-phosphorodithioate; Diethyl (dimethoxyphosphinothioylthio) succinate	OV/RP	7100+ 8970/7940 8100+ 8970/8940	Total dust 15mg/m <sup>3</sup> (o), 1mg/m <sup>3</sup> (t)*; -skin-	250mg/m <sup>3</sup>	Substance for which an ACGIH BEI exists, t-A4; *Measured as inhalable fraction and vapor
<b>Maleic Anhydride</b> 108-31-6	cis-Butenedioic anhydride; 2,5-Furanedione; Maleic acid anhydride; Toxicic anhydride	FF-OV/N95	9001/2/3+ 7100+8910	0.0025ppm(t)* 0.25ppm(o) DSEN; RSEN	10 mg/m <sup>3</sup>	t-A4 *Measured as inhalable fraction and vapor
<b>Manganese<sup>2+</sup> Dust &amp; Inorganic Compounds (as Mn)</b> *7439-96-5	Colloidal manganese, Manganese-55	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (c)(o); 0.02mg/m <sup>3</sup> (t)* 0.1mg/m <sup>3</sup> (t)**	500mg/m <sup>3</sup> (as Mn)	TLV-A4 *Respirable **Inhalable
<b>Manganese, Metal Fume (as Mn)</b> 7439-96-5	Colloidal manganese, Manganese-55	N	2310/2315N99 2400/2800N95	0.02mg/m <sup>3</sup> (t)*; 5mg/m <sup>3</sup> (c)(o) 0.1mg/m <sup>3</sup> (t)**	500mg/m <sup>3</sup> (as Mn)	*Respirable **Inhalable
<b>Marble</b>	(See Calcium Carbonate)					
<b>Mesityl Oxide</b> 141-79-7	Isobutenyl methyl ketone, Isopropylideneacetone, Methyl isobutenyl ketone, 4-Methyl-3- penten-2-one	FF-OV	9001/2/3+ 7100	15ppm (t) 25ppm (o) 25ppm (s)(t)	1400ppm [10% LEL]	
<b>Methacrylic Acid</b> 79-41-4	Methacrylic acid (glacial), Methacrylic acid (inhibited), α-Methacrylic acid, 2-Methylacrylic acid, 2-Methylpropenoic acid	FF-OV	9001/2/3+ 7100	20ppm(t)	N.D.	
<b>Methanethiol</b> 74-93-1	(See Methyl Mercaptan)					
<b>2-Methoxyethyl Acetate</b> 110-49-6	Ethylene Glycol Methyl Ether Acetate; Glycol Monomethyl Ether Acetate; Methyl Cellosolve Acetate®; EG-ME	OV	7100 8100	0.1ppm (t); 25ppm (o); -skin-	200ppm	Substance for which ACGIH BEI exists
<b>4-Methoxyphenol</b> 150-76-5	Hydroquinone monomethyl ether, p-Hydroxyanisole, Mequinol, p-Methoxyphenol Monomethyl ether hydroquinone	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (t)	N.D.	
<b>Methyl Acetate</b> 79-20-9	Methyl ester of acetic acid, Methyl ethanoate	OV	7100 8100	200ppm (o)(t); 250ppm (s)(t)	3100ppm [10% Lower explosion limit]	Short service life
<b>Methyl Acrylate</b> 96-33-3	Methoxycarbonylethylene, Methyl ester of acrylic acid, Methyl propenoate	FF-OV	9001/2/3+ 7100	2ppm (t) 10ppm (o) -skin- -DSEN-	250ppm	t-A4
<b>Methyl Cellosolve®</b> 109-86-4	EGME, Ethylene glycol monomethyl ether, Glycol monomethyl ether, 2-Methoxyethanol	OV	7100 8100	0.1ppm (t); 25ppm (o); -skin-	200ppm	Substance for which ACGIH BEI exists
<b>5-Methyl-3-Heptanone</b> 541-85-5	Amyl ethyl ketone, Ethyl amyl ketone, 3-Methyl-5-heptanone	FF-OV	9001/2/3+ 7100	10ppm (t) 25ppm (o)	100ppm	
<b>Methylamine</b> 74-89-5	Aminomethane, Methylamine (anhydrous), Methylamine (aqueous), Monomethylamine	AM	7400 8400	10ppm (o), 5ppm (t); 15ppm (s)(t)	100ppm	Must use goggles for half mask
<b>Methyl Cellosolve Acetate®</b> 110-49-6	(See 2-Methoxyethyl Acetate)					
<b>Methyl Chloroform</b> 71-55-6	Chloroethene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)	OV	7100 8100	350ppm (t)(o) 450ppm (s)(t)	700ppm	ACGIH BEI exists; t-A4
<b>Methylcyclopentadienyl Manganese Tricarbonyl</b> 12108-13-3	Cl-2, Combustion Improver-2, Manganese tricarbonylmethylcyclopentadienyl, 2-Methylcyclopentadienyl manganese tricarbonyl, MMT	OV/N	7100+8910 8100+8910	0.2mg/m <sup>3</sup> (t); -skin-	N.D.	If heat involved, use supplied air
<b>Methylcyclohexane</b> 108-87-2	cyclohexylmethane; hexahydrotoluene	OV	7100/8100	400ppm(t) 500ppm(o)	1200ppm (LEL)	

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>4,4-Methylenedianiline</b> 101-77-9	4,4-Diaminodiphenylmethane; MDA	NRP100	2730N100 2360P100 4400P100 7940/7990 8940/7990	0.01ppm (o); 0.1ppm (t); 0.1ppm (s)(o); -skin-	N.D.	Need OV/NRP100 if heat is involved. See 29 CFR 1910.1050; O-Ca; t-A3
<b>Methyl Ethyl Ketone</b> 78-93-3	see 2-Butanone					
<b>Methyl Ethyl Ketone Peroxide</b> 1338-23-4	2-Butanone peroxide; Ethyl methyl ketone peroxide; MEKP; MEK peroxide; Methyl ethyl ketone hydroperoxide	FF-OV	9001/2/3+ 7100	0.2ppm(t)(c)	N.D.	
<b>Methyl Isoamyl Ketone</b> 110-12-3	Isoamyl methyl ketone, Isopentyl methyl ketone, 2-methyl-5-hexanone, 5-Methyl-2-hexanone, methyl-2-Hexanone, MIAK	FF-OV	9001/2/3+ 7100	20ppm (t) 100ppm (o) 50ppm (s)(t)	N.D.	
<b>Methyl Hydrazine</b> 60-34-4	MMH, Monomethylhydrazine	FF-AM	9001/2/3+ 7400	0.01ppm(t) 0.2(c)(o) -skin-	20 ppm	t-A3
<b>Methyl Isobutyl Carbinol</b> 108-11-2	Methyl Amyl Alcohol	OV	7100 8100	25ppm (o)(t); 40ppm (s)(t); -skin-	400ppm	
<b>Methyl Isobutyl Ketone</b> 108-10-1	see Hexanone					
<b>Methyl Isopropyl Ketone</b> 563-80-4	2-Acetyl propane, Isopropyl methyl ketone, 3-Methyl-2-butanone, 3-Methyl butan-2-one, MIPK	FF-OV	9001/2/3+ 7100	20ppm (t)	N.D.	
<b>Methyl (n-amy)l Ketone</b> 110-43-0	Amyl methyl ketone, n-Amyl methyl ketone, 2-Heptanone, Amyl methyl ketone	OV	7100 8100	100ppm (o); 50ppm (t)	800ppm	Add 8940 or 7940 if Particulate is present
<b>Methyl Mercaptan</b> 74-93-1	Mercaptomethane, Methanethiol, Methyl sulfhydrate	OV	7100 8100	0.5ppm (t); 10ppm (c)(o)	150ppm	Very short service life
<b>Methyl Methacrylate</b> 80-62-6	Methacrylate monomer, Methyl ester of methacrylic acid, Methyl-2-methyl-2-propenoate	OV	7100 8100	100ppm (o) 50ppm (t) 100ppm (s)(t) -DSEN- -skin-	1,000ppm	t-A4
<b>Methyl Parathion</b> 298-00-0	Azophos®; O,O-Dimethyl-O-p-nitrophenylphosphorothioate; Parathion methyl	OV/P100	7100+7940 8100+8940	0.02mg/m³ (t);* -skin-	N.D.	Substance for which an ACGIH BEI exists; t-A4; *Measured as inhalable fraction and vapor
<b>Methyl Propyl Ketone</b> 107-87-9	see 2-Pentanone					
<b>a-Methyl Styrene</b> 98-83-9	1-Methyl-1-Phenyl-Ethylene; AMS; 2 Phenylpropylene; Isopropenyl Benzene	OV	7100 8100	10ppm (t); 100ppm (c)(o)	700ppm	Add 8970 or 7940 if Particulate is present t-A3
<b>Mica (less than 1% quartz)</b> 12001-26-2	Biotite, Lepidolite, Margarite, Muscovite, Phlogopite, Roscoelite, Zimmwaldite	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	20mppcf (o);** 3mg/m³ (t)*	1,500mg/m³	Does not include strearates of toxic metals; *Measured as respirable fraction of aerosol **<1% Silica
<b>Mineral Spirits</b>	(See Stoddard Solvent)					
<b>Molybdenum - Soluble Compounds – Inorganics only (as Mo)</b> 7439-98-7		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m³ (o) 0.5mg/m³ (t)* {water soluble}	1,000mg/m³ (as Mo)	*Respirable fraction; t-A3
<b>Molybdenum - Insoluble Compounds and Metal Dust – Inorganics only (as Mo)</b> 7439-98-7		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m³ (t)** 15mg/m³ (o)* 3mg/m³ (t)***	5,000mg/m³ (as Mo)	*Total dust; ***Respirable fraction and **Inhalable fraction
<b>Monochlorobenzene</b> 108-90-7	(See Chlorobenzene)					
<b>Morpholine</b> 110-91-8	Diethylene imidoxide; Diethylene oximide, Tetrahydro-1,4-oxazine; Tetrahydro-p-oxazine	FF-OV	9001/2/3+ 7100	20ppm (o) (t) -skin-	1400ppm [10% LEL]	t-A4
<b>Muriatic Acid</b> 7647-01-0	(See Hydrogen Chloride)					

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>-N-</b>						
<b>Naphtha (Coal tar)</b> 8030-30-6	crude solvent coal tar naphtha, High solvent naphtha, Naphtha	FF-OV	9001/2/3+ 7100	100ppm (o)	1000ppm [10% LEL]	
<b>Naphthalene</b> 91-20-3	Naphthalin, Tar camphor, White tar	OV/N	7100+8910 8100+8910	10ppm (o)(t); -skin-	250ppm	ACGIH BEI exists t-A3
<b>a-Naphthylamine</b> 134-32-7	1-Aminonaphthalene, 1-Naphthylamine				N.D.	See 29CFR1910.1003 and 1004; O-Ca
<b>b-Naphthylamine</b> 91-59-8	2-Aminonaphthalene, 2-Naphthylamine	{water soluble}			N.D.	See 29CFR1910.1003, t-A1; O-Ca
<b>Nickel, Soluble Compounds (as Ni) (Inorganic only)</b> (Not including Nickel Carbonyl)		N {water soluble}	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (t)* 1mg/m <sup>3</sup> (o)	10mg/m <sup>3</sup> (as Ni)	*Inhalable fraction, t-A4
<b>Nickel, Insoluble Compounds (as Ni)</b> (Not including Nickel Carbonyl)		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1.0mg/m <sup>3</sup> (o), 0.2mg/m <sup>3</sup> (t)*	10mg/m <sup>3</sup> (as Ni)	*Inhalable fraction, t-A1
<b>Nickel, Metal</b> 7440-02-0		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (o), 1.5mg/m <sup>3</sup> (t)*	10mg/m <sup>3</sup> (as Ni)	*Inhalable fraction, t-A5
<b>Nicotine</b> 54-11-5	3-(1-Methyl-2-Pyrrolidyl) Pyridine	OV/RP	7100+8970/7940 8100+8970/8940	0.5mg/m <sup>3</sup> (o)(t); -skin-	5mg/m <sup>3</sup>	
<b>p-Nitroaniline</b> 100-01-6	para-Aminonitrobenzene, 4-Nitroaniline, 4-Nitrobenzenamine, p-Nitrophenylamine, PNA	OV/N	7100+8910 8100+8910	3mg/m <sup>3</sup> (t); 6mg/m <sup>3</sup> (o) -skin-	300mg/m <sup>3</sup>	Substance for which an ACGIH BEI exists t-A4
<b>Nitrobenzene</b> 98-95-3	Essence of mirbane, Nitrobenzol, Oil of mirbane	OV	7100 8100	1ppm (o)(t); -skin-	200ppm	t-A3
<b>Nitroethane</b> 79-24-3	Nitroetan	FF-OV	9001/2/3+ 7100	100ppm (o) (t)	1000ppm	
<b>Nitromethane</b> 75-52-5	Nitrocarbol	OV	7100 8100	20ppm (t) 100ppm (o)	750ppm	t-A3
<b>1-Nitropropane</b> 108-03-2	Nitropropane, 1-NP	OV	7100 8100	25ppm (t)(o)	1000ppm	t-A4
<b>2-Nitropropane</b> 79-46-9	Dimethylnitromethane, iso-Nitropropane, 2-NP	OV	7100 8100	10ppm (t) 25ppm (o)	100ppm	t-A3
<b>Nonane</b> 111-84-2	n-Nonane, Nonyl hydride	OV	7100 8100	200ppm (t)	N.D.	
<b>Nuisance particulates</b>	See (Particulates not otherwise classified)					
<b>-O-</b>						
<b>Octachloronaphthalene</b> 2234-13-1	Halowax 1051, 1,2,3,4,5,6,7,8-Octachloronaphthalene, Perchloronaphthalene	OV/N	7100+8910 8100+8910	0.1mg/m <sup>3</sup> (o)(t); 0.3mg/m <sup>3</sup> (s)(t); -skin-	1mg/m <sup>3</sup> *	Add 8910 if particulate is present. *NIOSH set "Effective" IDLH at 10x the Recommended Exposure Limit (REL)
<b>Octane</b> 111-65-9	n-Octane, normal-Octane	OV	7100 8100	500ppm (o)* 300ppm (t)	1,000ppm; [10% Lower explosion limit]	*n-Octane only
<b>Oil Mist (Mineral)</b> 8021-95-1	White Mineral Oil; Heavy Mineral Oil; Paraffin Oil	RP	2760P100, 2360P100 4300P95, 4400P100 2740R95/8970 7940/7990 8940/8990*	5mg/m <sup>3</sup> (o)	2,500mg/m <sup>3</sup>	
<b>Oxalic Acid</b> 144-62-7	Ethanedioic acid, Oxalic acid (aqueous), Oxalic acid dihydrate	OV/N	7100+8910 8100+8910	1mg/m <sup>3</sup> (o)(t); 2mg/m <sup>3</sup> (s)(t)	500mg/m <sup>3</sup>	
<b>-P-</b>						
<b>Paraffin Wax Fume</b> 8002-74-2		RP	2740R95/ 2360P100/8970 7940/7990 8940/8990	2mg/m <sup>3</sup> (t)	N.D.	
<b>Paraquat Dichloride</b> 1910-42-5	1,1'-Dimethyl-4,4'-bipyridinium dichloride; N,N'-Dimethyl-4,4'-bipyridinium dichloride; Paraquat chloride; Paraquat dichloride	OV/NRP	7100+8910/ 8970/8940 8100+8910/ 8970/8940	0.5mg/m <sup>3</sup> (o);* 0.05mg/m <sup>3</sup> (t);** *Respirable dust as Fraction of the aerosol **Measured as inhalable fraction of the aerosol -skin-	1mg/m <sup>3</sup> (t)	t-A4

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Parathion</b> 56-38-2	O,O-Diethyl-O(p-nitrophenyl) phosphorothioate; Diethyl parathion; Ethyl parathion;	OV/P100	7100+7940 8100+8940	0.1mg/m <sup>3</sup> (o); -0.05mg/m <sup>3</sup> (t)* -skin-	10mg/m <sup>3</sup>	Substance for which an ACGIH BEI exists; t-A4; *Measured as inhalable fraction and vapor
<b>Particulates Not Otherwise Classified (PNOC)</b>		NRP	See note**	Total dust 15mg/m <sup>3</sup> (o) or 50mppcf(o); Respirable fraction 5mg/m <sup>3</sup> (o) or 15mppcf (o)		**Caution is advised category includes many materials, R or P filter is suggested if oils are present
<b>Pentachloronaphthalene</b> 1321-64-8	Halowax® 1013; 1,2,3,4,5-Pentachloronaphthalene	OV/N	7100+8910 8100+8910	0.5mg/m <sup>3</sup> (o)(t); -skin-	5mg/m <sup>3</sup> *	*NIOSH set "Effective" IDLH at 10x the Recommended Exposure Limit (REL) ACGIH NIC to measured as inhalable fraction and vapor
<b>Pentachlorophenol</b> 87-86-5	PCP; Penta; 2,3,4,5,6-Pentachlorophenol	OV/N	7100+8910 8100+8910	0.5mg/m <sup>3</sup> (o); 0.5mg/m <sup>3</sup> (t)*; 1.0mg/m <sup>3</sup> (s)(t)* -skin-	2.5mg/m <sup>3</sup>	Substance for which an ACGIH BEI exists; t-A3; *Measured as inhalable fraction and vapor
<b>Pentaerythritol</b> 115-77-5	2,2-bis(Hydroxymethyl)-1,3-propanediol; Methane tetramethylol; Monopentaerythritol; PE; Tetrahydroxymethylolmethane; Tetramethylolmethane	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t); Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>2-Pentanone</b> 107-87-9	Methyl Propyl Ketone, MPK, Ethyl acetone	FF-OV	9001/2/3+ 7100	200ppm (o) 150ppm (s)(t)	1500ppm	
<b>Perchloroethylene</b>	see tetrachoroethylene					
<b>Perchloromethyl Mercaptan</b> 594-42-3	PCM, PMM, Trichloromethane sulfenyl chloride, Trichloromethyl sulfur chloride	OV	7100 8100	0.1ppm (o)(t)	10ppm	
<b>Perlite</b> 93763-70-3	Sodium Potassium Aluminum Silicate Expanded perlite	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total Dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Petroleum Distillates (Naptha)</b> 8002-05-9	Petroleum Naptha; Aliphatic Petroleum Naptha; Rubber Solvent	OV	7100 8100	500ppm (o)	1,100ppm; [10% Lower explosion limit]	Odors vary. Must have good warning properties to use 8100 or 7100. Specific TLV's apply
<b>Phenol</b> 108-95-2	Carbolic acid, Hydroxybenzene, Monohydroxybenzene, Phenyl alcohol, Phenyl hydroxide	OV/N	7100+8910 8100+8910	5ppm (o)(t); -skin-	250ppm	Substance for which an ACGIH BEI exists; t-A4
<b>p-Phenylene Diamine</b> 106-50-3	4-Aminoaniline; 1,4-Benzenediamine; p-Diaminobenzene; 1,4-Diaminobenzene; 1,4-Phenylene diamine	OV/N	7100+8910 8100+8910	0.1mg/m <sup>3</sup> (o)(t); -skin-	25mg/m <sup>3</sup>	Use supplied air if heat is involved; t-A4
<b>Phenyl Ether, Vapor</b> 101-84-8	Diphenyl ether, Diphenyl oxide, Phenoxy benzene, Phenyl oxide	OV/N	7100+8910 8100+8910	1ppm (o)(t); 2ppm (s)(t)	100ppm	
<b>Phenyl Ether - Biphenyl Mixture; Vapor</b> 8004-13-5	Dowtherm™ A, Diphenyl Oxide - Diphenyl Mixture	OV/N	7100+8910 8100+8910	1ppm (o)	10ppm	Add 8910 if Particulate is present
<b>Phenylphosphine</b> 638-21-1	Fenylfosfin, PF, Phosphaniline	OV	7100/8100	0.05ppm(c)(t)	N.D.	
<b>Phenylethylene</b> 100-42-5	(see Styrene Monomer)					
<b>Phosphoric Acid</b> 7664-38-2	Orthophosphoric acid, Phosphoric acid (aqueous), White phosphoric acid	FF-N95	9001/2/3+ 7940/7990	1mg/m <sup>3</sup> (o)(t) 3mg/m <sup>3</sup> (s)(t)	1000mg/m <sup>3</sup>	
<b>Phosphorus Pentasulfide</b> 1314-80-3	Phosphorous persulfide, Phosphorous sulfide, sulfur phosphide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (o)(t); 3mg/m <sup>3</sup> (s)(t)	250mg/m <sup>3</sup>	
<b>Phosphorous Trichloride</b> 7719-12-2	Phosphorus chloride	FF-AG	9001/2/3+ 7200	0.2ppm(t) 0.5ppm(s)(t) 0.5ppm(o)	25 ppm	

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Phthalic Anhydride</b> 85-44-9	Phosphoric Sulfide	OV/N	7100+8910 8100+8910	2ppm (o) .0003ppm (t)* .0009ppm (s)(t)* DSEN RSEN -skin-	10ppm	t-A4; *Measured as inhalable fraction and vapor
<b>m-Phthalodinitrile</b> 626-17-5	Isophthalodinitrile; IPN; m-Dicyanobenzene	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (t)*	N.D.	*Measured as inhalable fraction and vapor
<b>Picric Acid</b> 88-89-1	Phenol trinitrate; 2,4,6-Trinitrophenol	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (o)(t); -skin-	75mg/m <sup>3</sup>	
<b>Pindone</b> 83-26-1	Tert-Butylvalone, mist 1,3-Dioxo-2-Pivaloyl-Lindane; Pival; Pivalyl; 2 Pivalyl-1-3-inandione	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (o)(t)	100mg/m <sup>3</sup>	
<b>Plaster of Paris</b> 26499-65-0	See Gypsum					
<b>Platinum Metal, Dusts and Mists</b> 7440-06-4	Platinum black, Platinum metal, Platinum sponge	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (t) <b>{water-based}</b>	N.D.	
<b>Platinum Soluble Salts</b> 7440-06-4	Synonyms vary depending upon the specific soluble platinum salt	FF-N95	9001/2/3+ 7940/7990	.002mg/m <sup>3</sup> (o)(t)	4mg/m <sup>3</sup> (as Pt)	
<b>Portland Cement</b> 65997-15-1	Hydraulic Cement; Cement; Portland Cement Silicate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o) or 50mppcf (o); Respirable fraction 5mg/m <sup>3</sup> (o); 1mg/m <sup>3</sup> (t)*	5,000mg/m <sup>3</sup>	*Measured as respirable fraction of the aerosol; t-A4
<b>Potassium Hydroxide</b> 1310-58-3	Caustic Potash; Lye; Potassium Hydrate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2mg/m <sup>3</sup> (c)(t)	N.D.	
<b>Propargyl Alcohol</b> 107-19-7	1-Propyn-3-ol; 2-Propyn-1-ol; 2-Propynyl alcohol	OV	7100 8100	1ppm (t) -skin-	N.D.	
<b>Propionic Acid</b> 79-09-4	Carboxyethane, Ethanecarboxylic acid, Ethylformic acid, Metacetic acid, Methyl acetic acid, Propanoic acid	FF-OV	9001/2/3+ 7100	10ppm (t)	N.D.	
<b>n-Propyl Acetate</b> 109-60-4	Propylacetate, n-Propyl ester of acetic acid	FF-OV	9001/2/3+ 7100	200ppm (o)(t)	1700ppm	
<b>n-Propyl Alcohol</b> 71-23-8	1-propanol, n-propanol, propanol, Ethyl carbinol	FF-OV	9001/2/3+ 7100	100ppm (t) 200ppm (o)	800ppm	Add particulate prefilter if particulate is present t-A4
<b>Propylene Dichloride</b> 78-87-5	Dichloro-1,2-propane; 1,2-Dichloropropane	OV	7100 8100	10ppm (t); 75ppm (O) -DSEN-	400ppm	t-A4
<b>Propylene Glycol Dinitrate</b> 6423-43-4	PGDN; Propylene glycol-1,2-dinitrate; 1,2 Propylene glycol dinitrate	FF-OV	9001/2/3+ 7100	0.05ppm -skin-	N.D.	Substance for which an ACGIH BEI exists
<b>Propylene Imine</b> 75-55-8	2-Methylaziridine; 2-Methylethyleneimine; Propyleneimine (inhibited); Propylenimine	FF-OV	9001/2/3+ 7100	0.2ppm (t), 0.4ppm (s)(t), 2ppm(o) -skin-	100ppm	t-A3;
<b>n-Propyl Nitrate</b> 627-13-4	Propyl ester of nitric acid	OV	7100/8100	25ppm(t) 40ppm(s)(t) 25ppm(o)	500 ppm	Substance for which ACGIH BEI exists
<b>Propylene Glycol Monomethyl Ether</b> 107-98-2	Dowtherm® 209, 1-Methoxy-2-hydroxypropane, 1-Methoxy-2-propanol, 2-Methoxy-1-methylethanol, Propylene glycol methyl ether	OV	7100 8100	50ppm (t); 100ppm (s)(t)	N.D.	
<b>Pyrethrum</b> 8003-34-7	Cinerin I or II; Jasmolin I or II; Pyrethrin I or II; Pyrethrum I or II [Pyrethrum is a variable mixture of Cenerin, Jasmolin and Pythrin]	OV/P100	7100/7940 8100/8940	5mg/m <sup>3</sup> (o)(t)	5,000mg/m <sup>3</sup>	t-A4
<b>Pyridine</b> 110-86-1	Azabenzene; Azine	OV	7100 8100	5ppm (o) 1ppm (t)	1,000ppm	t-A3

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>-Q-</b>						
<b>Quartz</b>	(See Silica, Crystalline)					
<b>Quinone</b> 106-51-4	Benzoquinone, 1,4-Benzoquinone; p-Benzoquinone, 1,4-Cyclohexadiene dioxide, p-Quinone	FF-OV/N95	9001/2/3+ 7100/8910	0.1ppm (o)(t)	22ppm	
<b>-R-</b>						
<b>Resorcinol</b> 108-46-3	1,3-Benzenediol; m-Benzenediol; 1,3-Dihydroxybenzene; m-Dihydroxybenzene; 3-Hydroxyphenol; m-Hydroxyphenol	OV/N	7100/8910 8100/8910	10ppm (t); 20ppm (s)(t)	N.D.	t-A4
<b>Rhodium, Metal* and Insoluble Compounds, Dusts and Mists (as Rh)</b> *7440-16-6		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (o); 1mg/m <sup>3</sup> (t) {water-based}	100mg/m <sup>3</sup> (as Rh)	t-A4
<b>Rhodium, Metal Fume (as Rh)</b> 7440-16-6		N	2310/2315N99 2400/2800N95 4800N95	0.1mg/m <sup>3</sup> (o) 1mg/m <sup>3</sup> (t)	100mg/m <sup>3</sup> (as Rh)	t-A4
<b>Rhodium, Soluble Compounds (as Rh)</b>		NRP100	2730N100 2360P100 4400P100 4700N100 7940/7990 8940/8990	0.001mg/m <sup>3</sup> (o); 0.01mg/m <sup>3</sup> (t)	2mg/m <sup>3</sup> (as Rh)	t-A4
<b>Ronnel</b> 299-84-3	O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate; Fenchlorophos	OV/NRP100	7100+7940 8100+8940	5mg/m <sup>3</sup> (t)* 15mg/m <sup>3</sup> (o)	300mg/m <sup>3</sup>	Substance for which ACGIH BEI exists, t-A4. *Measured as inhalable fraction and vapor
<b>Rotenone</b> 83-79-4	1,2,12,12a-Tetrahydro-8,9-dimethoxy-2-(1-methylethenyl)-[1]benzopyrano[3,4-b]furo[2,3-h][1]benzopyran-6(6aH)-one	OV/NRP100	7100+7940 8100+8940	5mg/m <sup>3</sup> (o)(t)	2,500mg/m <sup>3</sup>	t-A4
<b>Rouge</b> 1309-37-1	Iron(III)oxide, Iron oxide red, Red iron oxide, Red oxide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>-S-</b>						
<b>Selenium Metal</b> 7782-49-2		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.2mg/m <sup>3</sup> (t)	1mg/m <sup>3</sup> (as Se)	
<b>Silica-Amorphous, Diatomaceous Earth (Uncalcined)</b> 61790-53-2		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	20mppcf (o) or 80mg/m <sup>3</sup> (o) %SiO <sub>2</sub>	3000mg/m <sup>3</sup>	
<b>Silica-Crystalline</b> **14464-46-1 14808-60-7 ^15468-32-3 ^^1317-95-9	Cristobalite,** Quartz,* Tridymite,Δ TripoliΔΔ	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Respirable dust 0.05mg/m <sup>3</sup> (o); 0.025mg/m <sup>3</sup> (t)***	50mg/m <sup>3</sup> (Crystalline quartz, tripoli) 25mg/m <sup>3</sup> (cristobalite, tridymite)	*,**t-A2; ***Measured as respirable fraction of aerosol for quartz and cristobalite
<b>Silicon</b> 7440-21-3	Elemental silicon	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	15mg/m <sup>3</sup> (o); total dust Respirable fraction 5mg/m <sup>3</sup> (o)		
<b>Silicon Carbide</b> 409-21-2	Carbon Silicide; Carborundum; Silicon Monocarbide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	<b>Fibrous Dust</b> 0.1mg/m <sup>3</sup> (t) including whiskers*** 15mg/m <sup>3</sup> (t) total dust 5mg/m <sup>3</sup> (o) respirable dust  <b>Non-Fibrous Dust</b> 10mg/m <sup>3</sup> *,Δ 3mg/m <sup>3</sup> **,Δ		t-A2 *Inhalable fraction of the aerosol **Respirable fraction of the aerosol ***Respirable fibers length >5μ; aspect ratio ≥3:1, as determined by the membrane filter method at 400-450x magnification (4-mm objective), using phase-contrast illumination. ΔParticulate matter containing no asbestos and <1% crystalline silica

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Silver, Metal; Dust</b> 7440-22-4		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.01mg/m <sup>3</sup> (o); 0.1mg/m <sup>3</sup> (t)	10mg/m <sup>3</sup> (as Ag)	
<b>Silver, Soluble Compounds (as Ag)</b> 7440-22-4		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.01mg/m <sup>3</sup> (o)(t) {water-based}	10mg/m <sup>3</sup> (as Ag)	
<b>Soapstone</b>	Massive Talc; Steatite; Soapstone Silicate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total dust 20mppcf (o);	3,000mg/m <sup>3</sup>	Total dust containing no Asbestos and <1% Crystalline Silica
<b>Sodium Aluminum Fluoride</b> 15096-52-3	Cryocide, Cryodust, Cryolite; Sodium Hexafluoroaluminate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2.5mg/m <sup>3</sup> (o)	250mg/m <sup>3</sup> (as F)	
<b>Sodium Bisulfite</b> 7631-90-5	Monosodium salt of sulfurous acid, Sodium acid bisulfite, Sodium bisulphite, Sodium hydrogen sulfite	AG/N	7200+8910 8200+8910	5mg/m <sup>3</sup> (t)		t-A4
<b>Sodium Fluoroacetate</b> 62-74-8	SFA, Sodium monofluoroacetate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.05mg/m <sup>3</sup> (o)(t); -skin-	2.5mg/m <sup>3</sup>	
<b>Sodium Fluoride</b> 7681-49-4	Floridine, Sodium Monofluoride	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2.5mg/m <sup>3</sup> (o)(t)*	250mg/m <sup>3</sup>	t-A4; substance for which an ACGIH BEI exists *(as F)
<b>Sodium Hydroxide</b> 1310-73-2	Caustic soda, Lye, Soda lye, Sodium hydrate	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2mg/m <sup>3</sup> (o); 2mg/m <sup>3</sup> (c)(t)	10mg/m <sup>3</sup>	
<b>Sodium Metabisulfite</b> 7681-57-4	Sodium Pyrosulfite	AG/N	8200+8910 7200+8910	5mg/m <sup>3</sup> (t)	N.D.	t-A4
<b>Starch</b> 9005-25-8	Corn starch, Rice starch, Sorghum gum, -Starch, Starch gum, Tapioca starch	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t)*; 15mg/m <sup>3</sup> (o)*; Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	t-A4; *Total dust
<b>Stoddard Solvent</b> 8052-41-3	Dry cleaning safety solvent, Mineral spirits, Petroleum solvent, Spotting naphtha	OV	7100 8100	100ppm (t) 500ppm (o)	20,000mg/m <sup>3</sup>	
<b>Strychnine</b> 57-24-9	Nux vomica, Strychnos	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.15mg/m <sup>3</sup> (o)(t)	3mg/m <sup>3</sup>	
<b>Styrene, Monomer</b> 100-42-5	Ethenyl benzene, Phenylethylene, Styrene monomer, Styrol, Vinyl benzene	OV	7100 8100	20ppm (t)*; 100ppm -(o); - 40ppm (s)(t) 200ppm (c)(o) [600ppm (c)(o); 5 min peak/any 3 hrs]	700ppm	*Substance for which an ACGIH BEI exists; t-A4 ACGIH NIC to 2ppm (t) A3 & Ototoxicant
<b>Sucrose</b> 57-50-1	Beet sugar, Cane sugar, Confectioner's sugar, Granulated sugar, Rock candy, Saccarose, Sugar, Table sugar	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t)*; 15mg/m <sup>3</sup> (o)*; Respirable fraction 5mg/m <sup>3</sup> (o)		t-A4; *Total dust
<b>Sulfur Dioxide</b> 7446-09-5	Sulfurous acid anhydride, Sulfurous oxide, Sulfur oxide	AG	7200 8200	5ppm (o); 0.25ppm (s)(t)	100ppm	t-A4
<b>Sulfur Pentafluoride</b> 5714-22-7	Disulfur decafluoride, Sulfur decafluoride	AG	7200/8200	0.1ppm (c)(t) 0.025ppm (s)(o)	1 ppm	
<b>Sulfur Tetrafluoride</b> 7783-60-0	Tetrafluorosulfurane	AG	7200/8200	0.1ppm (c)(t)	N.D.	
<b>Sulfur Monochloride</b> 10025-67-9	Sulfur chloride, Sulfur subchloride, Thiosulfurous dichloride	FF-AG	9001/2/3 w 7200/7300/ 7600	1ppm (c)(t) 1ppm (o)	5ppm	
<b>Sulfuric Acid</b> 7664-93-9	Battery acid, Hydrogen sulfate, Oil of vitriol, Sulfuric acid (aqueous)	AG/N	7200+8910 8200+8910	1mg/m <sup>3</sup> (o) 0.2mg/m <sup>3</sup> (t)*	15mg/m <sup>3</sup>	Must use appropriate eye protection, t-A2 for Sulfuric Acids contained in strong inorganic acid mists *Measured as Thoracic fraction of the aerosol



Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>-T-</b>						
<b>2,4,5-T</b> 93-76-5	2,4,5-Trichlorophenoxy Acetic Acid	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (o)(t)	250mg/m <sup>3</sup>	t-A4
<b>Talc; (Containing no Asbestos Fibers)</b> 14807-96-6	Non-Asbestiform Talc; Hydrous Magnesium Silicate; Steatite Talc; Non-Fibrous Falc	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Respirable dust* 2mg/m <sup>3</sup> (t); 20mppcf (o)	1,000mg/m <sup>3</sup>	*Particulate containing no Asbestos and <1%; t-A4
<b>Talc (Containing Asbestos Fibers)</b>	(Use Asbestos recs. and see 29CFR1910.1001)					Containing Crystalline Silica, <1% quartz
<b>Tantalum, Metal &amp; Oxide Dusts (as Ta)</b> 7440-25-7 (metal) 1314-61-0 (oxide dusts)	Tantalum-181	N	EZ22/EZ23N95 2200/2300N95  2600/2700N95	5mg/m <sup>3</sup> (o)	2,500mg/m <sup>3</sup> (as Ta)	
<b>Tellurium* &amp; Compounds, Dusts &amp; Mists (Except Hexafluoride) (as Te)</b> *13494-80-9		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (o)(t)* <b>{water-based mists}</b>	25mg/m <sup>3</sup>	*Except Hydrogen Telluride
<b>Terphenyls (O,M,P Isomers)</b> 26140-60-3 84-15-1 92-06-8 92-94-4	o-Terphenyl; m-Terphenyl; p-Terphenyl; Mixed Terphenyls; Diphenyl Benzenes	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (c)(t) 9mg/m <sup>3</sup> (c)(o)	500mg/m <sup>3</sup>	OV+ particulate filter may be suggested if heat is involved
<b>1,1,2,2-Tetrabromoethane</b> 79-27-6	Acetylene tetrabromide, Muthmann's liquid, tetrabromoethane, Tetrabromoethylene	OV/P	7100+7940 8100+8940	0.1ppm (t)* 1ppm (o)	8ppm	Measured as inhalable fraction and vapors Use 8940 or 7940 when particulate is present ACGIH NIC to 0.1ppm (t)
<b>1,1,2,2 Tetrachloroethane</b> 79-34-5		OV	7100 8100	1ppm (t) 5ppm (o) -skin-	100ppm	t-A3
<b>Tetrachloroethylene</b> 127-18-4	perchloroethylene, perchloroethylene, perk	FF-OV	9001/2/3+ 7100	25ppm (t) 100ppm (s)(t) 100ppm (o) 200ppm (c)(o) 300ppm 5 min peak in any 3 hrs	150ppm	Substance for which ACGIH BEI exists; t-A3
<b>Tetrachloronaphthelene</b> 1335-88-2	Halowax®, Nibren wax, Seekay wax	OV/N	7100,8910 8100+8910	2mg/m <sup>3</sup> (o)(t) -skin-	50mg/m <sup>3</sup>	
<b>Tetraethyl Lead as Pb</b> 78-00-2	Lead tetraethyl, TEL, Tetraethylplumbane	OV	7100/8100	0.1mg/m <sup>3</sup> (t) 0.075mg/m <sup>3</sup> (o) -skin-	40 mg/m <sup>3</sup> (as Pb)	t-A4
<b>Tetramethyl Lead</b> 75-74-1	Lead tetramethyl, Tetramethylplumbane, TML	OV	7100/8100	0.15mg/m <sup>3</sup> (t) 0.075mg/m <sup>3</sup> (o) -skin-	40 mg/m <sup>3</sup> (as Pb)	
<b>Tetrahydrofuran</b> 109-99-9	Diethylene oxide; 1,4-Epoxybutane; Tetramethylene oxide; THF	OV	7100 8100	50ppm (t); 100ppm (s)(t) 200ppm (o)	2,000ppm (10% lower explosion limit)	t-A3
<b>Tetranitromethane</b> 509-14-8	Tetan, TNM	OV	7100/8100	0.005ppm(t) 1ppm(o)	4 ppm	t-A3
<b>Tetryl</b> 479-45-8	N-Methyl-N,2,4,6-tetranitroaniline; Nitramine; 2,4,6-Tetryl; 2,4,6-Trinitrophenyl-N-methylnitramine	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1.5mg/m <sup>3</sup> (o)(t); -skin-	750mg/m <sup>3</sup>	
<b>Thallium; Elemental and Soluble Compounds (as Tl)</b> *7440-28-0		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.1mg/m <sup>3</sup> (o); 0.02mg/m <sup>3</sup> (t)* -skin-	15mg/m <sup>3</sup> (as Tl)	*Measured as inhalable fraction and vapors
<b>4, 4'-Thiobis (6 Tert-Butyl-m-Cresol)</b> 96-69-5	4,4' -Thiobis (3-Methyl-6-Tert-Butylphenol)	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (t)*; 15mg/m <sup>3</sup> (o) Total dust; Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	t-A4; *Measured as inhalable fraction of the aerosol
<b>Thionyl Chloride</b> 7719-09-7	Sulfinyl chloride, Sulfur chloride oxide, Sulfurous dichloride, Sulfurous oxychloride, Thionyl dichloride	FF-OV	9001/2/3+ 7100	0.2ppm(c)(t)	N.D.	
<b>Thiram</b> 137-26-8		OV/NRP100	7100+7940 8100+8940	5mg/m <sup>3</sup> (o); 0.05mg/m <sup>3</sup> (t)* DSEN	100mg/m <sup>3</sup>	tA-4; *Measured as inhalable fraction and vapors
<b>Tin Oxide Tin, and Metal Oxides (as Sn), Dusts &amp; Mists</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	2mg/m <sup>3</sup> (o)* 2mg/m <sup>3</sup> (t) <b>{water-based mists}</b>	100mg/m <sup>3</sup> (as Sn) except for Tin (II) and Tin (IV)	*Inorganic compound except oxides ACGIH NIC to 2mg/m <sup>3</sup> measured as inhalable fraction of the aerosol

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Tin, Organic Compounds (as Sn)</b> 7440-31-5		OV/N	7100+8910 8100+8910	0.1mg/m <sup>3</sup> (o)(t); 0.2mg/m <sup>3</sup> (s)(t); -skin-	25mg/m <sup>3</sup>	t-A4
<b>Titanium Dioxide</b> 13463-67-7	Rutile, Titanium oxide, Titanium peroxide	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t) 15mg/m <sup>3</sup> (o)*	5000mg/m <sup>3</sup>	*Total dust, t-A4;
<b>Toluene</b> 108-88-3	Methyl benzene, Methyl benzol, Phenyl methane, Toluol	OV	7100 8100	20ppm (t); 200ppm (o); 300ppm (c)(o); [500ppm 10 min peak per 8 hr shift (c)(o)]	500ppm	t-A4 substance for which an ACGIH BEI exists
<b>m-Toluidine</b> 108-44-1	3-Amino-1-Methylbenzene, 3-Methylaniline, 3-Methylbenzenamine, 3-Toluidine, Meta-Toluidine, 1-Aminophenyl Methane; m-Aminotoluene; m-Tolylamine	FF-OV	9001/2/3+ 7100	2ppm(t) -skin-	N.D.	t-A4 Substance for which ACGIH BEI exists
<b>o-Toluidine</b> 95-53-4	o-Aminotoluene, 2-Aminotoluene, 1-Methyl-2-aminobenzene, o-Methylaniline, 2-Methylaniline, ortho-Toluidine, o-Tolylamine	FF-OV	9001/2/3+ 7100	2ppm (t) 5ppm (o) -skin-	50 ppm	t-A3 Substance for which ACGIH BEI exists
<b>p-Toluidine</b> 106-49-0	4-Aminotoluene, 4-Methylaniline, 4-Methylbenzenamine, 4-Toluidine, para-Toluidine, p-Tolylamine	FF-OV	9001/2/3+ 7100	2ppm (t) -skin-	N.D.	t-A3 Substance for which ACGIH BEI exists
<b>Tributyl Phosphate</b> 126-73-8	Butyl phosphate, TBP, Tributyl ester of phosphoric acid, Tri-n-butyl phosphate	OV/RP	7100+ 8970/7940 8100+ 8970/8940	5mg/m <sup>3</sup> (o)(t)*	30ppm	*Measured as respirable fraction and vapor; Substance for which an ACGIH (Acetylcholinesterase Inhibiting Pesticide) BEI exists; t-A3
<b>Trichloroacetic Acid</b> 76-03-9	TCA, Trichloroethanoic acid	OV/AG	7300 8300	0.5ppm (t)	N.D.	t-A3
<b>1,2,4-Trichlorobenzene</b> 120-82-1	unsym-Trichlorobenzene; 1,2,4-Trichlorobenzol	OV	7100 8100	5ppm (c)(t)	N.D.	
<b>1,1,2-Trichloroethane</b> 79-00-5	Ethane trichloride, b-Trichloride, Vinyl trichloride	FF-OV	9001/2/3+ 7100	10ppm(t) 10ppm (o) -skin-	100 ppm	t-A3
<b>Trichloroethylene</b> 79-01-6	Ethylene trichloride, TCE, Trichloroethene, Trilene	OV	7100 8100	10ppm (t); 100ppm (o); 200ppm (c)(o) [300ppm 5 min peak in any 2 hrs] 25ppm (c)(t)	1000ppm	substance for which an ACGIH BEI exists; t-A2
<b>Trichloronaphthalene</b> 1321-65-9	Hallowax; Seekay Wax; Nibren Wax	OV/N	7100+8910 8100+8910	5mg/m <sup>3</sup> (o)(t); -skin-	20mg/m <sup>3</sup>	Use 8940 when particulate is present
<b>1,2,3-Trichloropropane</b> 96-18-4	Allyl trichloride, Glycerol trichlorohydrin, Glyceryl trichlorohydrin, Trichlorohydrin	FF-OV	9001/2/3+ 7100	.005ppm (t) 50ppm (o)	100ppm	t-A2
<b>Tridymite</b>	(See Silica Crystalline)					
<b>Triethylamine</b> 121-44-8	TEA	FF-OV	9001/2/3+ 7100	0.5ppm (t) 1ppm (s)(t) 25ppm (o) -skin-	200ppm	t-4A
<b>Trimellitic Anhydride</b> 552-30-7	TMA	OV/N	7100+8910 8100+8910	0.0005mg/m <sup>3</sup> (t)* 0.002mg/m <sup>3</sup> (c)(t)* -skin- -DSEN- -RSEN-		*Measured as inhalable fraction and vapors
<b>Trimethylamine</b> 75-50-3	N,N-Dimethylmethanamine; TMA [Note: May be used in an aqueous solution (typically 25%, 30%, or 40% TMA.)]	FF-AM	9001/2/3+ 7400/7600	5ppm (t) 15ppm (c)(t)	N.D.	
<b>Trimethyl Benzene*</b> 95-63-6; 108-67-8; 526-73-8	Mesitylene; Pseudocumene; Hemimellitene	OV/P100	7100+7940 8100+8940	25*ppm (t)		*All isomers and mixed isomers

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>Trimethylphosphite</b> 121-45-9	Methyl phosphite, Trimethoxyphosphine, Trimethyl ester of phosphorous acid	FF-OV	9001/2/3+ 7100	2ppm (t)	N.D.	
<b>2,4,6-Trinitrophenol</b> 88-89-1	(See Picric Acid)					
<b>2,4,6-Trinitrophenylmethyl-Nitramine</b> 479-45-8	(See Tetryl)					
<b>2,4,6-Trinitrotoluene</b> 118-96-7	1-Methyl-2,4,6-trinitrobenzene; TNT; Trinitrotoluene; sym-Trinitrotoluene; Trinitrotoluol	OV/N	7100+8910 8100+8910	0.1mg/m <sup>3</sup> (t); 1.5mg/m <sup>3</sup> (o) -skin-	500mg/m <sup>3</sup>	Substance for which an ACGIH BEI (Methemoglobin inducer) exists. ACGIH NIC measured as inhalable fraction and vapor
<b>Triorthocresyl Phosphate</b> 78-30-8	o-Tritolyl Phosphate; TCP; TOCP; Tricresylphosphate	R/P	2740R95 7940/7990 4300P95 2360P100 4400P100 8970/8940 8990	0.1mg/m <sup>3</sup> (o); 0.013ppm(t)* -skin-	40mg/m <sup>3</sup>	Substance for which as ACGIH BEI exists (Acetylcholinesterase Inhibiting Pesticide). *Measured as inhalable fraction and vapor
<b>Triphenyl Phosphate</b> 115-86-6	Phenyl phosphate; TPP; Triphenyl ester of phosphoric acid	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	3mg/m <sup>3</sup>	1,000mg/m <sup>3</sup>	t-A4, use 8100, or 7100 and 8910 if heat is involved
<b>Tripoli</b>	(See Silica-Crystalline)					
<b>Tungsten* In the absence of cobalt</b> *7440-33-7	Tungsten metal, Wolfram	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	3mg/m <sup>3</sup> (t);*	N.D.	*Measured as the respirable fraction and the aerosol
<b>Turpentine</b> 8006-64-2	Gumspirits, Gum turpentine, Spirits of turpentine, Steam distilled turpentine, Sulfate wood turpentine, Turps, Wood turpentine	FF-OV	9001/2/3+ 7100	100ppm (o) 20ppm (t) -DSEN-	800ppm	t-A4, add particulate prefilter if particulate is present
<b>-U-</b>						
<b>Uranium (natural*), insoluble compounds (as U)</b> *7440-61-1		NRP100	2730N100 2360P100 4400P100 8940/8990 7940P100 7990P100	0.25mg/m <sup>3</sup> (o) 0.2mg/m <sup>3</sup> (t); 0.6mg/m <sup>3</sup> (s)(t)	10mg/m <sup>3</sup> (as U)	t-A1, Refer to 10CFR20 Subpart H
<b>Uranium (Natural)*, Soluble Compounds (as U)</b> 7440-61-1		AG/P100	7200+7940 8200+8940	0.05mg/m <sup>3</sup> (o); 0.2mg/m <sup>3</sup> (t); 0.6mg/m <sup>3</sup> (s)(t)	10mg/m <sup>3</sup> (as U) <b>{water soluble}</b>	t-A1, Refer to 10CFR20 Subpart H. Use 8200+8940 or 7200+7940 when halides are present
<b>-V-</b>						
<b>n-Valeraldehyde</b> 110-62-3	Amyl aldehyde, Pentanal, Valeral, Valeraldehyde, Valeric Aldehyde	FF-OV	9001/2/3+ 7100	50ppm (t)	N.D.	
<b>Vanadium Pentoxide Dust (as V<sub>2</sub>O<sub>5</sub>)</b> 1314-62-1		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.05mg/m <sup>3</sup> (t) inhalable fraction; 0.5mg/m <sup>3</sup> (c)(o)	35mg/m <sup>3</sup> (as V)	t-A3
<b>Vanadium Pentoxide Fume (as V<sub>2</sub>O<sub>5</sub>)</b> 1314-62-1		N	2310/2315N99 2400/2800N95	0.05mg/m <sup>3</sup> (t) inhalable fraction; 0.1mg/m <sup>3</sup> (c)(o)	35mg/m <sup>3</sup> (as V)	t-A3
<b>Vegetable Oil, Mists</b>		RP	2740R95/ 4400P100/8970 7940/7990 8940/8990 4300P95 2360P100	Total particulates 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	
<b>Vinyl Acetate</b> 108-05-4	1-Acetoxyethylene, Ethenyl acetate, Ethenyl ethanoate, VAC, Vinyl acetate monomer, Vinyl ethanoate	FF-OV	9001/2/3+ 7100	10ppm (t) 15ppm (s)(t)	N.D.	t-A3; Add particulate prefilter if particulate is present
<b>Vinyl Benzene</b> 100-42-5	(See Styrene, Monomer)					
<b>Vinyl Cyanide</b> 107-13-1	(See Acrylonitrile)					
<b>Vinyl Toluene</b> 25013-15-4	Ethenylmethylbenzene, Methylstyrene, Tolyethylene	FF-OV	9001/2/3+ 7100	50ppm (t) 100ppm (s)(t) 100ppm (o)	400ppm	t-A4 *Add particulate prefilter if particulate is present

Chemical – CAS#	Synonyms	Filter Type	Moldex Suggested	TLV(t) PEL(o)	IDLH	Comments
<b>-W-</b>						
<b>Warfarin</b> 81-81-2	3-(Acetyl)-benzyl-4-hydroxycoumarin; 4-Hydroxy-3-(3-oxo-1-phenyl butyl)- 2H-1-benzopyran-2-one; WARF	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.01mg/m <sup>3</sup> (o)(t)* -skin-	100mg/m <sup>3</sup>	*Measured as inhalable fraction of the aerosol
<b>Welding Fumes</b> <b>(Not Otherwise Classified)</b>	(See specific compounds)	N	2310/2315N99 2400/2800N95			
<b>Wood Dust, All Varieties</b> <b>Except Western</b> <b>Red Cedar</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (t)*		*Inhalable fraction, t-A1 Beech, Oak; t-A2 Birch, Mahogany, Teak, Walnut; t-A4 all other species.
<b>Wood Dust, Western Red Cedar</b>		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	0.5mg/m <sup>3</sup> (t)* -DSEN- -RSEN-	N.D.	Inhalable fraction, t-A4
<b>-X-</b>						
<b>Xylenes (o-, m-, &amp; p-Isomers)</b> 108-38-3, 106-42-3 95-47-6	1,3-bis(Aminomethyl)benzene; 1,3-Benzenedimethanamine; MXDA; m-Phenylenebis(methylamine); m-Xylylenediamine	OV	7100 8100	100ppm (o)(t); 150ppm (s)(t)	900ppm	Substance for which an ACGIH BEI exists, t-A4
<b>m-Xylene a,a-Diamine</b> 1477-55-0	MXDA	OV/N	7100+8910 8100+8910	0.1mg/m <sup>3</sup> (c)(t); -skin-		
<b>Xylidine (Mixed Isomers)</b> 1300-73-8	Aminodimethylbenzene, Aminoxylene, Dimethylaminobenzene, Dimethylaniline, Xylidine isomers (e.g., 2,4-Dimethylaniline)	OV/N	7100/8910 8100/8910	5ppm (o); 0.5ppm (t);* -skin-	50ppm	Substance for which ACGIH BEI (Methemoglobin inducer) exists, t-A3; *inhalable vapor and aerosol
<b>-Y-</b>						
<b>Yttrium*, Metal &amp; cpds; Dusts &amp; Metals (as Y)</b> *7440-65-5	Specific Compounds	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	1mg/m <sup>3</sup> (o)(t)	500mg/m <sup>3</sup>	
<b>-Z-</b>						
<b>Zinc Chloride, Fume</b> 7646-85-7	Zinc dichloride fume	N	2310/2315N99 2400/2800N95	1mg/m <sup>3</sup> (o)(t); 2mg/m <sup>3</sup> (s)(t)	50mg/m <sup>3</sup>	
<b>Zinc Oxide, Dust</b> 1314-13-2	Calamine; Chinese White; Zinc White	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	Total particulates 15mg/m <sup>3</sup> (o); Respirable fraction 5mg/m <sup>3</sup> (o) 10mg/m <sup>3</sup> (s)(t)* 2mg/m <sup>3</sup> (t)*	500mg/m <sup>3</sup>	*Measured as respirable fraction of the aerosol.
<b>Zinc oxide, fume</b> 1314-13-2		N	2310/2315N99 2400/2800N95	5mg/m <sup>3</sup> (o)	500mg/m <sup>3</sup>	
<b>Zinc stearate</b> 557-05-1	Synpro stearate; Zinc distearate; Dermatone	N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	10mg/m <sup>3</sup> (t)*, 15mg/m <sup>3</sup> (o)*; Respirable fraction 5mg/m <sup>3</sup> (o)	N.D.	*Total dust
<b>Zirconium* compounds dusts and mists (as Zr)</b> *7440-67-7		N	EZ22/EZ23N95 2200/2300N95 2600/2700N95	5mg/m <sup>3</sup> (o)(t); 10mg/m <sup>3</sup> (s)(t) {water-based mists}	50mg/m <sup>3</sup>	t-A4

# CHANGEOUT SCHEDULES

OSHA 1910.134(d) requires that the employer implement a change schedule for cartridges based on objective information or data that will ensure cartridges are changed before the end of their service life (see OSHA1910.134 for complete text). A cartridge's useful service life is how long it provides adequate protection from harmful chemicals in the air. The service life of a cartridge depends on many factors, including environmental conditions, breathing rate, cartridge filtering capacity and the amount of contaminants in the air.

If you know what the chemical is and how much of it you are exposed to, then you are ready to estimate how long your respirator cartridges will work and apply the safety factor.

You must use some type of objective data to develop a changeout schedule. Options for determining a cartridge's service life include:

1. Conducting experimental tests.
2. Using a mathematical model like the "Advisor Genius" or "Breakthrough Software."

OSHA has on its website other means of calculating breakthrough times for various chemicals. You may also wish to consider use of this website in developing your changeout schedules. Be advised that actual service life can vary considerably from those calculated using these models. These models only provide rough estimates. Some of the data you will need specific to the Moldex cartridges in order to use the models on the OSHA website are:

- 8100 has an average of 36.7 grams Organic Vapor Carbon, its height is 1.91 cm, inside diameter is 7.76 cm.
- 8600 has an adsorbing equivalent of 28 grams Organic Vapor Carbon, its height is 2.08 cm, inside diameter is 7.76 cm.
- A change out schedule worksheet is provided.
- 7100 has an average of 42.5 grams Organic Vapor Carbon, its height is 2.18 cm, inside diameter is 7.78 cm.
- 7600 has an absorbing equivalent of 36.0 grams Organic Vapor Carbon, its height is 2.18 cm, inside diameter is 7.78 cm.

## CARTRIDGE DETAILS READ THIS WARNING

These weights were estimated by Assay Technology using methods based on their tests. It is suggested that you use default values provided by OSHA for the other cartridge specific parameters. Lastly, in order for the OSHA models to be used you may have to provide other pertinent data on the challenge agent which may be found on the MSDS or from the chemical manufacturer. These models can be found at [http://www.osha.gov/SLTC/etools/respiratory/change\\_schedule.html](http://www.osha.gov/SLTC/etools/respiratory/change_schedule.html). They are called "Respirator Change Schedules."

Moldex suggests that you use the OSHA models, or other means provided by OSHA. Moldex always recommends that you utilize the most conservative (shortest) breakthrough times. Moldex recommends that you use any of the methods only for the contaminants contained in this guide.

For more detailed information on these methods, refer to OSHA's website at:

[https://www.osha.gov/SLTC/etools/respiratory/advisor\\_genius\\_nrdl/work\\_categories.html](https://www.osha.gov/SLTC/etools/respiratory/advisor_genius_nrdl/work_categories.html)

[https://www.osha.gov/SLTC/etools/respiratory/change\\_schedule\\_mathmodel.html](https://www.osha.gov/SLTC/etools/respiratory/change_schedule_mathmodel.html)

For more information on NIOSH multi-vapor program, refer to website at:

<http://www.cdc.gov/niosh/npptl/multivapor/multivapor.html>

If you have any questions please feel free to call Moldex Technical Services at +1 (800) 421-0668 and +1 (310) 837-6500, ext. 512/550.



# 8000 CARTRIDGE CHANGE SCHEDULE WORKSHEET

**Duties / Job Classification:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Chemical Information (from MSDS or Manufacturer)**

**Chemical:** \_\_\_\_\_

**Exposure Limit:** \_\_\_\_\_

**Maximum Concentration:** \_\_\_\_\_

**Boiling Point:** \_\_\_\_\_

**Molecular Weight:** \_\_\_\_\_

**Liquid Density:** \_\_\_\_\_

**Vapor Pressure:** \_\_\_\_\_

**Molecular Polarization:** \_\_\_\_\_

**Refractive Index:** \_\_\_\_\_

**Worksite Conditions**

**Maximum Expected Temperature (°C):** \_\_\_\_\_

**Expected Relative Humidity (%):** \* \_\_\_\_\_

**Work Rate:** Light    Moderate    Heavy

**Number of Shifts/Week:** \_\_\_\_\_

**Hours Cartridge Used/Shift:** \_\_\_\_\_

**8000 Cartridge Data**

**# of Cartridges:** \_\_\_\_\_ 2

**8100 Absorbing Equivalent (grams):** \_\_\_\_\_ 36.7

**8100 Cartridge Bed Height (cm):** \_\_\_\_\_ 1.91

**8600 Absorbing Equivalent (grams):** \_\_\_\_\_ 28.0

**8600 Cartridge Bed Height (cm):** \_\_\_\_\_ 2.08

**8100 & 8600 Bed Diameter (cm):** \_\_\_\_\_ 7.76

**Service Life Estimate:** \_\_\_\_\_

**Basis Used:** \_\_\_\_\_

**Cartridge Change Schedule Every \_\_\_\_\_ Hours**

**After Each Shift:** \_\_\_\_\_

**Other:** \_\_\_\_\_

This form may be used to assist you in developing a changeout schedule when using 8100 or 8600 cartridges for protection against organic vapors. Be advised, this is simply a tool to help you collect some of the pertinent data in developing a changeout schedule. It is your responsibility to ensure the accuracy of the schedules that you develop for each operation and work site.

\* Moldex suggests you use a range and use the lowest predicted breakthrough time.



# 7000/7800/9000 CARTRIDGE CHANGE SCHEDULE WORKSHEET

(For use with 7000 or 9000 Series Respirators)

**Duties / Job Classification:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Chemical Information (from MSDS or Manufacturer)**

**Chemical:** \_\_\_\_\_

**Exposure Limit:** \_\_\_\_\_

**Maximum Concentration:** \_\_\_\_\_

**Boiling Point:** \_\_\_\_\_

**Molecular Weight:** \_\_\_\_\_

**Liquid Density:** \_\_\_\_\_

**Vapor Pressure:** \_\_\_\_\_

**Molecular Polarization:** \_\_\_\_\_

**Refractive Index:** \_\_\_\_\_

**Worksite Conditions**

**Maximum Expected Temperature (°C):** \_\_\_\_\_

**Expected Relative Humidity (%):** \* \_\_\_\_\_

**Work Rate:** Light    Moderate    Heavy

**Number of Shifts/Week:** \_\_\_\_\_

**Hours Cartridge Used/Shift:** \_\_\_\_\_

**7000 Cartridge Data**

<b># of Cartridges:</b>	_____	2
<b>7100 Absorbing Equivalent (grams):</b>	_____	42.5
<b>7100 Cartridge Bed Height (cm):</b>	_____	2.18
<b>7600 Absorbing Equivalent (grams):</b>	_____	36.0
<b>7600 Cartridge Bed Height (cm):</b>	_____	2.18
<b>7100 &amp; 7600 Bed Diameter (cm):</b>	_____	7.78

**Service Life Estimate:** \_\_\_\_\_

**Basis Used:** \_\_\_\_\_

**Cartridge Change Schedule Every \_\_\_\_\_ Hours**

**After Each Shift:** \_\_\_\_\_

**Other:** \_\_\_\_\_

This form may be used to assist you in developing a changeout schedule when using 7100 or 7600 cartridges for protection against organic vapors. Be advised, this is simply a tool to help you collect some of the pertinent data in developing a changeout schedule. It is your responsibility to ensure the accuracy of the schedules that you develop for each operation and work site.  
\* Moldex suggests you use a range and use the lowest predicted breakthrough time.

# DO NOT USE AGAINST

Moldex respirators may not be used to protect against the following list of chemicals *when concentrations are at or above the OSHA Permissible Exposure Limit (PEL)*. In the event that a PEL is exceeded, we suggest that you consult an Industrial Hygienist or other health and safety professional to determine the appropriate form of protection against any of these chemicals. This list is not all inclusive.

<b>- A -</b>	<b>CAS #s</b>	<b>- D -</b>	<b>CAS #s</b>
ACETONE CYANOHYDRIN	75-86-5	DDT (DICHLORODIPHENYL-TRICHLOROETHANE)	50-29-3
2-ACETYLAMINOFLUORENE	53-96-3	DECABORANE	17702-41-9
ADIPONITRILE	111-69-3	DEMETON	8065-48-3
ALDRIN	309-00-2	2,4 DIAMINOANISOLE AND SALTS	615-05-4
4-AMINODIPHENYL	92-67-1	2,4- DIAMINOTOLUENE	95-80-7
3-AMINO-1,2,4-TRIAZOLE	61-82-5	o-DIANSIDINE (3,3'-DIMETHOXYBENZIDENE)	
AMITROLE	61-82-5	& DYES METABOLIZED TO THIS COMPOUND	119-90-4
ANTIMONYHYDRIDE	7803-52-3	DIAZOMETHANE	34-88-3
ARSINE	7784-42-1	DIBORANE	19287-45-7
		1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	96-12-8
<b>- B -</b>		2-N-DIBUTYLAMINOETHANOL	102-81-8
BENZIDINE	92-87-5	DICHLOROACETYLENE	7572-29-4
BROMOETHANE	74-96-4	3,3-DICHLOROBENZIDENE (AND ITS SALTS)	91-94-1
BROMOTRIFLUOROMETHANE	75-63-8	DICHLORODIFLUOROMETHANE (FC-12)	75-71-8
BUTANE (ALL ISOMERS)	75-28-5,106-97-8	DICHLORODIPHENYL-TRICHLOROETHANE	50-29-3
n-BUTYL GLYCIDYL ETHER (BGE)	2426-08-6	DICHLOROETHYNE	7572-29-4
		DICHLOROFUOROMETHANE (FC-21)	75-43-4
<b>- C -</b>		1,1-DICHLORO-FLUOROETHANE	1717-00-6
CALCIUM CYANIDE	592-01-8	DICHLOROMETHANE	75-09-2
CAPTAFOL	2425-06-1	2,2-DICHLOROPROPIONIC ACID SODIUM SALT	127-20-8
CARBARYL	63-25-2	DICHLOROTETRAFLUROETHANE	
CARBOFURAN	1563-66-2	(1,2-DICHLORO-1,1,2,2-TETRAFLUROETHANE)	76-14-2
CARBON DIOXIDE	124-38-9	DICHLORVOS (DDVP)	62-73-7
CARBON MONOXIDE	630-08-0	DIELDRIN	60-57-1
CARBON TETRABROMIDE	558-13-4	DIESEL EXHAUST	N/A
CARBONYL CHLORIDE	75-44-5	DIETHYLENE OXIDE	754-12-1
CARBONYL FLUORIDE*	353-50-4	1,1-DIFLUOROETHANE	75-37-6
CARBONYL SULFIDE	463-58-1	1,1-DIFLUOROETHYLENE	75-38-7
CHLORDANE	57-74-9	DIFLUOROMETHANE	75-10-5
CHLORDECONE	143-50-0	3-3'-DIMETHYLBENZIDENE	119-93-7
CHLORINATED CAMPHENE	8001-35-2	3-3'-DIMETHOXYBENZIDENE	119-90-4
CHLORINATED DIPHENYL OXIDE	55720-99-5	DIMETHOXYMETHANE	109-87-5
CHLORINE TRIFLUORIDE	7790-91-2	DIMETHYLACETAMIDE	127-19-5
O-CHLOROBENZYLIDENE MALONONITRILE	2698-41-1	N,N-DIMETHYLACETAMIDE	127-19-5
1-CHLORO-1,1-DIFLUOROETHANE	75-68-3	4-DIMETHYLAMINOAZOBENZENE	60-11-7
CHLORODIFLUOROMETHANE	75-45-6	bis-(2-DIMETHYLAMINOETHYL) ETHER	3033-62-3
CHLOROETHANE	75-00-3	DIMETHYLAMINOPROPIONITRILE	1738-25-6
CHLOROETHYLENE	75-01-4	DIMETHYL CARBAMOYL CHLORIDE	79-44-7
CHLOROFUOROMETHANE (FC-31)	593-70-4	DIMETHYL ETHER	115-10-6
bis-CHLOROMETHYL ETHER	542-88-1	DIMETHYLETHOXSILANE	14857-34-2
CHLOROMETHYL METHYL ETHER	107-30-2	DIMETHYL FORMAMIDE	68-12-2
p-CHLORONITROBENZENE	100-00-5	N,N DIMETHYLNITROSOAMINE	62-75-9
CHLOROPENTAFLUROETHANE	76-15-3	DIMETHYL SULFATE	77-78-1
CHLOROPICRIN	76-06-2	4,4-DIPHENYLMETHANE DIISOCYANATE	101-68-8
o-CHLOROSTYRENE	2039-87-4	DIPROPYLENE GLYCOL METHYL ETHER	34590-94-8
2-CHLORO-1,1,1,2-TETRAFLUROETHANE	2387-89-0	DIVINYL BENZENE	1321-74-0
CHLOROTRIFLUOROETHYLENE	79-38-9		
COBALT CARBONYL	10210-68-1	<b>- E -</b>	
COBALT HYDROCARBONYL	16842-03-8	ENFLURANE	13838-16-9
CYANIDES, as CN	420-04-2	EPN	2104-64-5
CYANOGEN	460-19-5	ETHANE	74-84-0
CYANOGEN BROMIDE	506-68-83	ETHYLAMINE	75-04-7
CYANOGEN CHLORIDE	506-77-4	ETHYL BROMIDE	74-96-4
CYCLOPENTANE	287-92-3	ETHYL CHLORIDE	75-00-3
		ETHYLENE	74-85-1
		ETHYLENE GLYCOL DINITRATE	628-96-6
		ETHYLENEIMINE	151-56-4
		ETHYLENE OXIDE	75-21-8
		ETHYLENE THIOUREA	96-45-7



# DO NOT USE AGAINST (Continued)

	<b>CAS #s</b>		<b>CAS #s</b>
<b>- F -</b>		MEVINPHOS	7786-34-7
FLUORINE	7782-41-4	METHYLCHLORO METHYL ETHER	107-30-2
FLUOROETHENE	75-02-5	MONOFLUOROETHYLENE	75-02-5
FLUOROETHYLENE	75-02-5	MONOMETHYL ANILINE	100-61-8
FLUOROTRICHLOROMETHANE	75-69-4	N METHYLANILINE	100-61-8
FORMIC ACID, METHYL ESTER	107-31-3		
FORMIC ACID	64-18-6	<b>- H -</b>	
<b>- G -</b>		NAPHTHALENE DIISOCYANATE (NDI)	3173-72-6
GERMANIUM TETRAHYDRIDE	7782-65-2	1,5-NAPHTHALENE DIISOCYANATE	3173-72-6
GLYCOLONITRILE	107-16-4	NIAX CATALYST ESN	62765-93-9
GLYOXOL	107-22-2	NICKEL CARBONYL	13463-39-3
<b>- H -</b>		NITRIC ACID	7697-37-2
HEPTACHLOR	76-44-8	NITRIC OXIDE	10102-43-9
HEXAFLUOROACETONE	684-16-2	4-NITROBIPHENYL (4-NITRODIPHENYL)	92-93-3
HEXAFLUOROPROPANE	690-39-1	p-NITROCHLOROENZENE	100-00-5
HEXAFLUOROPROPYLENE	116-15-4	NITROGEN DIOXIDE	10102-44-0
HEXAMETHYLENE DIISOCYANATE	822-06-0	NITROGEN TRIFLUORIDE	7783-54-2
HEXAMETHYL PHOSPHORAMIDE	680-31-9	NITROGLYCERIN	55-63-0
1,1,1,3,3,3, - HEXAFLUORO -2- PROPANONE	684-16-2	2-NITRONAPHTHALENE	581-89-5
HYDROGEN CYANIDE	74-90-8	n-NITROSODIMETHYLAMINE	62-75-9
HYDROGEN PEROXIDE	7722-84-1	NITROUS OXIDE	10024-97-2
HYDROGEN SELENIDE	7783-07-5	o,m,p NITROTOLUENE	99-08-1
			88-72-2
			99-99-0
<b>- I -</b>		<b>- O -</b>	
IODINE	553-56-2	OSMIUM TETROXIDE	20816-12-0
IODOFORM	75-47-8	OXYGEN DIFLUORIDE	7783-41-7
IRON PENTACARBONYL	13463-40-6	OZONE	10028-15-6
ISOBUTANE	75-28-5		
ISOCYANATES	71000-82-3	<b>- P -</b>	
ISOPHORONE DIISOCYANATE	4098-71-9	PENTABORANE	19624-22-7
<b>- K -</b>		1,1,1,2,2-PENTAFLUOROETHANE	354-33-6
KEPONE	143-50-0	1,1,1,3,3-PENTAFLUOROPROPANE	460-73-1
KETENE	463-51-4	PERCHLORYL FLUORIDE	7616-94-6
		PERFLUOROISOBUTYLENE	382-21-8
<b>- L -</b>		PETROLEUM GAS	68476-85-7
L.P.G (LIQUIFIED PETROLEUM GAS)	68476-85-7	PHENYL GLYCIDYL ETHER	122-60-1
		PHENYLHYDRAZINE	100-63-0
<b>- M -</b>		N-PHENYL-B-NAPHTHYLAMINE	135-88-6
MALONALDEHYDE	542-78-9	PHOSDRIN	7786-34-7
MALONONITRILE	109-77-3	PHOSGENE	75-44-5
MANGANESE CYCLOPENTADIENYL TRICARBONYL	12079-65-1	PHOSPHINE	7803-51-2
MERCURY COMPOUNDS (AS HG)		PHOSPHOROUS (YELLOW)	7723-14-0
MERCURY VAPOR	7439-97-6	PHOSPHOROUS OXYCHLORIDE	10025-87-3
MERCURIC CHLORIDE	7487-94-7	PHOSPHOROUS PENTACHLORIDE	10026-13-8
METHANE	74-82-8	POTASSIUM CYANIDE	151-50-8
METHANOL	67-56-1	PROPANE	74-98-6
METHOXYACETIC ACID	625-45-6	PROPANE SULTONE	1120-71-4
METHOXYCHLOR	72-43-5	b-PROPIOLACTONE	57-57-8
1-METHOXYPROPYL-2-ACETATE	108-65-6	PROPIONALDEHYDE	123-38-6
2-(METHOXYMETHYL ETHOXY)-PROPANOL	34590-94-8	PROPYLALDEHYDE	123-38-6
METHYL ACETYLENE	74-99-7	PROPYLENE	115-07-1
METHYL ACETYLENE PROPADIENE MIXTURE (MAPP)	59355-75-8	PROPYNE	74-99-7
METHYL ACRYLONITRILE	126-98-7	<b>- S -</b>	
METHYLAL	109-87-5	SELENIUM HEXAFLUORIDE	7783-79-1
METHYLACETALDEHYDE	123-38-6	SILANE	7803-62-5
METHYL ALCOHOL	67-56-1	SEVIN	63-25-2
n-METHYL ANILINE	100-61-8	SILICON TETRAHYDRIDE	7803-62-5
METHYL BROMIDE	74-83-9	SODIUM AZIDE	26628-22-8
METHYL CHLORIDE	74-87-3	SODIUM CYANIDE	143-33-9
METHYLCYCLOHEXANOL	25639-42-3	STIBINE	7803-52-3
METHYLCYCLOHEXANONE	583-60-8	SUBTILISINS	1395-21-7
METHYLENE BISPHENYL ISOCYANATE	101-68-8	SUCCINONITRILE	110-61-2
METHYLENE CHLORIDE	75-09-2	SULFOTEPP	3689-24-5
4,4-METHYLENE bis (2-CHLOROANILINE)	101-14-4	SULFUR HEXAFLUORIDE	2551-62-4
METHYLENE bis (4-CYCLOHEXYLISOCYANATE)	5124-30-1	SULFURYL FLUORIDE	2699-79-8
METHYL FORMATE	107-31-3	SYSTOX	8065-48-3
METHYL IODIDE	74-88-4		
METHYL ISOCYANATE	624-83-9		
METHYL PROPANE	75-28-5		
2-METHYL PROPANE	75-28-5		
N METHYL-2-PYROLIDINE	872-50-4		
N METHYL SILICATE	681-84-5		

# DO NOT USE AGAINST (Continued)

	CAS #s	CAS #s
<b>- I -</b>		
TEDP	3689-24-5	
TELLURIUM HEXAFLUORIDE	7783-80-4	
TEPP	107-49-3	
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD)	1746-01-6	
1,1,1,2-TETRACHLORO-2,2-DIFLUOROETHANE	76-11-9	
1,1,2,2-TETRACHLORO-1,2-DIFLUOROETHANE	76-12-0	
TETRAETHYL PYROPHOSPHATE (TEPP)	107-49-3	
1,1,1,2-TETRAFLUOROETHANE	811-97-2	
2,3,3,3-TETRAFLUOROPROPENE	754-12-1	
TETRAFLUOROETHYLENE	116-14-3	
TETRAMETHYLENE	754-12-1	
TETRAMETHYLSUCCINONITRILE	3333-52-6	
THIOGLYCOLIC ACID	68-11-1	
o-TOLIDINE	119-93-7	
o-TOLIDINE-BASED DYES		
TOLUENE 2,4-DIAMINE	25376-45-8, 95-80-7	
TOLUENE 2,4-DIISOCYANATE (TDI)	584-84-9	
TOLUENE 2,6-DIISOCYANATE	91-08-7	
TOXAPHENE	8001-35-2	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	
TRICHLOROFLUOROMETHANE	75-69-4	
TRIETHOXSILANE	998-30-1	
1,1,1-TRIFLUORO-2,2-DICHLOROETHANE	306-83-2	
TRIETHANOLAMINE	102-71-6	
TRIFLUOROBROMOMETHANE	75-63-8	
1,1,1-TRIFLUOROETHANE	420-46-2	
2,2,2-TRIFLUOROETHANOL	75-89-8	
<b>- V -</b>		
VINYL BROMIDE	593-60-2	
VINYL CHLORIDE	75-01-4	
VINYLCYCLOHEXENE DIOXIDE	106-87-6	
VINYLFUORIDE	75-02-5	
VINYLDENE FLUORIDE	75-38-7	

# NOTES

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#### TECHNICAL HELP LINE

For information, technical assistance, and training materials call +1 (800) 421-0668 or +1 (310) 837-6500, ext. 512/550.

The information in the *2019 Moldex Chemical Selection Guide* is dated and was accurate to the best of Moldex's knowledge as of January 2019. This *2019 Guide* supercedes all previous *Guides*, including printed and electronic versions. If you have an electronic version other than the *2019 Guide* please delete it from your computer. The *2019 Guide* can be accessed online at [www.moldex.com](http://www.moldex.com).

Before selecting Moldex respirators for use, it is important that you refer to the most recent *Guide* available. If you have any questions on how to use this guide or on the selection and use of any respiratory protection device, call the Moldex Technical Services Department at +1 (800) 421-0668, +1 (310) 837-6500, ext. 512/550 or [tech@moldex.com](mailto:tech@moldex.com). Products listed in this *Guide* are subject to this limited warranty.

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