



How can I reduce the risk in my environmental monitoring program?

# Improve your viable air sampling with the MAS-100™. The most complete and accurate line of microbial air monitoring systems available!

That's what's in it for you. EMD Chemicals



## How The MAS-100 Works

All MAS-100 Microbial Air Monitoring Systems are sieve impaction systems based on the Anderson impaction principle, accepted and proven worldwide. Air is aspirated through a perforated lid. A radial fan, controlled by a flow sensor, accurately regulates air flow real time at 100 liters per minute. The air is impacted onto the surface of growth media in a 100mm agar plate or 60mm contact plate. Microorganisms impact the media and the colonies are counted after the proper incubation period. All MAS-100 microbial air samplers comply with the guidelines as specified in ISO 14698 part 1 and part 2.

# Sample Collection Accuracy

The MAS-100 Microbial Air Monitoring Systems provide the most accurate sample collection available. The MAS-100 systems (except the MAS-100™ Eco) utilize a state-of-the-art mass flow sensor to assure a constant air flow rate of 100 liters/min. The mass flow sensor continuously regulates the air flow rate during sample collection. This allows the MAS-100 to automatically adjust for differences in fill volume of petri dishes, changes in air density and differences between individual perforated lids.



## The MAS-100 NT

The industry standard for viable air sampling.

The new MAS-100 NT and MAS-100 NT EX portable microbial air samplers are the next generation of the industry standard for use in critical environments. These compact yet sophisticated devices are the preferred choice for those demanding the highest quality in microbial air monitoring. The MAS-100 NT systems feature a new 300 hole perforated lid for increased collection efficiency and impaction speed. Both systems utilize standard 90-100mm agar plates or can be adapted to fit 60mm contact plates allowing for a low consumable cost and greater flexibility. Sampling at 100 liters per minute, these systems

have the highest airflow accuracy available at  $\pm$  2.5%, compared to others that can be as high as  $\pm$ 10%. The integrated flow sensor allows the user to freely interchange the perforated lids without affecting the accuracy or the calibration of the unit.

Sampling volumes are also easily configurable between 1 and 2,000 liters. The units have a horizontal air flow velocity of 0.45 meters per second and isokinetic flow rate that will not produce turbulence in a laminar flow environment. The new SQS function will allow for smaller sampling volumes over longer periods of time, up to 50 sequences over 24 hours.





## The MAS-100 NT Ex

Explosion proof.

The new MAS-100 NT® systems are controlled using a new menu driven, larger illuminated display allowing for quicker navigation. A programmable start delay of up to 60 minutes allows for personnel to be out of the sampling area when the sampling starts and a new audible alarm indicating the interruption of a sampling cycle. The MAS-100 NT is powered by a new Lithium ion rechargeable battery with an intelligent charging program that assures long battery life without routine discharging. When fully charged, the battery pack provides 7 hours of continuous operation or about 42,000 liters of total volume.

The MAS-100 NT® microbial air sampler also features a new USB data communication port. This allows for easy download of software upgrades and easy communication with LIMS programs. The improved communications provides an interface to the new DA-100™ NT calibration standard for fully automated calibration! The MAS-100 NT & MAS-100 NT Ex are the first microbial air sampling system with automated calibration, assuring absolute accuracy.

The new MAS-100 NT Ex shares all of the same functions of the new MAS-100 NT system but is specially designed for use in explosion proof areas. The MAS-100 NT Ex has received ATEX Conformity and can be used in zone 2 and gas groups 11A,11B,and 11C in temperature classes T1 to T4.



## **Technical Specifications**

MAS-100 NT and MAS-100 NT I	Ex
Height	27 cm
Diameter	11 cm
Weight	2.2 kg
Material	Anodized aluminum
Nominal Airflow	100 liters / min. + 2.5%
Preset Sampling Volumes	50, 100, 250, 500, 1000 liters
User Defined Sampling Volumes	1 to 2000 liters, in increments of 1 liter
Battery Pack	Li-lon, rechargeable battery, 7.4 V / 6.9 Ah
Charging time:	Full recharge time approx. 3.5 hours
Running time:	Total running time approx. 7 hours
Total aspiration volume:	approx. 42000 litres
Motor	6 V
Display	Backlit liquid crystal display
Lifetime RTC Battery	RTC (Real Time Clock) battery; good for approx. 10 years
Driving Motor	PWM (Pulse Width Modulation) frequency for driving motor
Airflow Regulation	Hot-wire anemometer, numerical control, Temperature and Pressure sensors
CE Approval	Emission: EN 61326-1:2006, EN 55011:1998+A1:99 Immunity: EN 61326-1:2006, EN 61000-4-2:1995 + A1:98 +A2:01 EN 61000-4-3:2002, EN 61000-4-4:1995 + A1:01 + A2:01 EN 61000-4-5:1995 + A1:01, EN 61000-4-6:1996 + A1:01 EN 61000-4-8:1993 + A1:0
Power Unit / Battery Charger	110-240 Volt, 50-60 KHz
Data Exchange	USB Interface

Note: Specifications for the MAS-100 Ex are the same as above.

## The MAS-100 ECO

The MAS-100 Eco offers an economical alternative to our highly acclaimed MAS-100 NT microbial air sampler. This smaller, lightweight unit is ideal for applications in or out of the cleanroom. The MAS-100 Eco offers many of the same features found on the standard MAS-100 NT air sampler, without the mass flow sensor. Like all MAS-100 systems, the MAS-100 Eco samples at a flow rate of 100 liters per minute and uses standard 100mm agar plates, providing a low operating cost. The handle doubles as a stand to allow different angles for testing and an optional tripod adapter attaches to the handle for fixed applications. The simple user menu is easily accessed and controlled using single touch "yes" or "no" responses. Sampling volumes are programmable from 1 - 1,000 liters with five preset volumes to assure reproducible results. The unit is pre-calibrated at EMD Chemicals Inc but re-calibration on-site is easy with the addition of our DA-100™ Digital Anemometer.



Technical Specifications	
Height (without handle)	14 cm
Diameter	11 cm
Height (with handle)	18 cm
Weight	1.4 kg
Material	Anodized aluminum
Diameter of Sampling head	10 cm
Nominal Airflow	100 liters / min ± 4.0%
Preset Sampling Volumes	10, 20, 50, 100, 200 & 500 liters
User Definable Sampling Volumes	1 to 1,000 liters
Rechargeable Batteries	2 NiMH rechargeable batteries, 1.2 V
Motor	6 V
Display	Alphanumeric liquid crystal display, 2 x8 characters
Lifetime RTC Battery	RTC (Real Time Clock) battery; good for about 10 years
CE Approval	EN 50081-1:1992 + EN 50082-1:1997 EN 50081-2:1993 + EN 50082-2:1995 + prEN 50082-2:1996
Power Unit / Battery Charger	110-240 Volt, 50-60 KHz
Output	5V DC/500mA



The MAS-100 CG Ex system is for use when there is a need to test compressed gases for microbial contamination. Utilizing two sensors, one to measure mass flow and the other for pressure, the unit collects samples under the actual pressure of the gas supply.

The MAS-100 CG Ex system samples at two constant flow rates, 100 L/min and 50 L/min for low flow applications. The system will sample gas at a pressure range between 1.5 bar to 10 bar. Compressed gas is directed through a perforated plate onto the 100mm agar plates. After sampling of the required volume of gas, a gradual decompression occurs automatically, preventing any sudden pressure change, avoiding possible damage to the microorganisms and improving recovery. After decompression, the agar plate is removed and incubated.

The MAS-100 CG Ex system is the only compressed gas microbial air sampler approved for use in Zone 2 explosion hazard areas.

The MAS-100 CG Ex is calibrated with compressed air. Due to our unique mass flow sensor technology, only a mathematical correction factor is required to sample other gasses. There is no need to calibrate for specific gasses.

The unit is pre-programmed for compressed air, nitrogen, carbon dioxide and argon gas, and a total of 10 gas protocols can be programmed and stored in the unit.

The MAS-100 CG Ex sampler makes compressed gas sampling easy and accurate. The automated collection process saves time and eliminates the awkward manipulations required with manual methods.

Technical Specifications	
Height	32.5 cm
Length	37.0 cm
Width	11.0 cm
Weight (without Sampling Head)	10 kg
Material Box	Coated aluminum
Nominal Flow Rates	100 liter / min. ± 5.0% (over the pressure range) of 1.5 bar to 10 bar (absolute) 50 liter/min. ± 5.0% over the pressure range of 1.5 bar to 10 bar (absolute)
Preset Sampling Volumes	50, 100, 250, 500, 1000 liter
Freely definable sampling volumes	1 to 2000 liter, volumes individually selectable between 0 and 2000 liters. 0 volumes are not displayed
Pre-programmed gas types	Air, nitrogen, carbon dioxide, argon, oxygen
Battery Pack	20 cells NiMH, 3800mAh, voltage 24 V
Battery Charger	110-240 Volt, 50-60 Hz
Charger Input	36 V DC, 1.5 A

Display	Alphanumeric liquid crystal display, 32 characters
Lifetime RTC Battery	Approx. 10 years
Flow Valve	Proportional, 24 Volt
Processor:	Type: 80C552
Gas Regulation	Mass flowmeter and pressure sensor 0-10 bar and proportional valve
CE Approval	EN 61000-6-1;2001, EN61000- 6-3;2001, EN61000-6- 2;2001, EN61000-6-4;2001, EN61326-1 + A1, 1998
Ex-Proof	SNCH 02 ATEX 3418, EN1127; 1997, EN 50021;1999
Head without Clamps , Height	16.0 cm
Diameter	10.0 cm
Weight	1.5 kg
Material	Anodized aluminum, clamps of stainless steel
Autoclavable	20 minutes at 121°C
Tubing	Length, 1.5m ID=10mm OD=19mm, sterilize for 20 min at 121°C
Rapid Connectors	Chromium-plated brass



Isolator Microbial Air Sampling Systems

The new MAS-100 ISO NT is a significant upgrade from the original MAS-100 ISO. Similar to the original system the MAS-100 ISO NT is designed for use in sterility isolators for manufacturing and QC testing. The new MAS-100 ISO NT is now a family of systems which includes a RABS, IP 54 and IP 66 versions for increased flexibility. The MAS-100 ISO NT is produced by GAMP 4 specifications and is compliant with guidelines as specified in ISO 14698 part1 and part 2.

Approximately 1/3 the size of it's predecessor the MAS-100 ISO NT uses an innovative triple valve system which enables the sampling heads and unit to be integrated into the sterilization process of the isolator or cleanroom. The valve system allows vaporized hydrogen peroxide (VHP)

to run through the sampling head and internal flow path without damage to the instrument.

The systems operate with an integrated mass flow sensor and use 100mm agar plates. The sampling head mounts inside the isolator with the instrument portion on the outside. Validated by GAMP 4 the MAS-100 ISO NT utilizes a flexible communications package including Ethernet, Profi-Bus, and 9 digital inputs/outputs. The MAS-100 ISO NT allows for remote activation via a computer or PLS controllers on the isolator.

The new MAS-100 ISO NT shares the same sampling accuracy and features of the portable MAS-100 NT including automatic calibration with the new DA-100<sup>™</sup> NT standard.



## Isolator Microbial Air Sampling Systems

Technical Specifications	
Nominal Airflow	100 Liters/min. ± 2.5%
Dimensions (L/W/H)	16 x 29 x 23 cm
Weight	7.5 kg without sampling head
Power	110-240 Volt, 1.5 A, 50-60 Hz
Power Input	DC 24 V/3.25 A/65 W Max
Max Current	2.5 A
Display	Backlit liquid crystal display
Preset Sampling Volumes	100, 250, 500, 750, 1000 Liters
User Definable Sampling Volumes	1 to 2000 liters
Material (Side Panels)	Anodized aluminum
Anemometer	Hot-wire anemometer, numeric control
Guidelines	73/23/EEC, 89/336/EEC, DIN EN 61326-1:1997, DIN EN 61010-1:2001, GAMP 4.0:2001
CE Approval	EN 61000-4-2; EN 61000-4-4; EN 61000-4-5; EN 61000- 4-11; EN 61000-4-8; EN 61000-4-6; EN 61000-4-3
Sampling Head	
Weight	1.5 kg
Material	Stainless Steel (316L)
Connector	3/4" Tri-Clamp
Diameter	10.9 cm
Height	9 cm
Weight	4.5 kg
Material (Side Panels)	Anodized aluminum
Valves	Rigid PVC/Viton/SS

## The DA-100<sup>™</sup> NT





The new The DA-100 NT Digital
Anemometer is a highly accurate transfer standard used to calibrate both MAS-100<sup>™</sup> and MAS-100 NT® instruments (Can not be used on the MAS-100 CG Ex). This digital vane anemometer spins freely on a magnetic field bearing and the revolutions are counted by a laser diode. These revolutions are then converted to either volumetric or mass flow rate and displayed on the LCD on the unit. This is made possible by an integrated temperature and pressure sensor.

The flow rate accuracy is  $\pm$  1.0%, the most accurate on the market. The display also shows temperature (°C), velocity in m/sec and barometric pressure in mbar. The

DA-100 NT may be used in manual or automatic calibration modes for calibration of the new MAS-100 NT instruments. In the automatic mode a cable is attached between the MAS-100 NT and the DA-100 NT. Once accessing the auto calibration function the DA-100 NT reads and adjusts the MAS-100 NT to specified flow rates. This completely eliminates human error in performing the calibration.

The DA-100 NT is calibrated at EMD Chemicals laboratory using a critical venturi flow standard, traceable to NIST. Certification is provided for each instrument.



## **Technical Specifications**

DA-100			
Accuracy at 100 liters/min.	+ 1.0%		
Height	8.5 cm		
Diameter	11 cm		
Weight	0.8 kg		
Vane Bearing	Magnetic (patent	pending)	
Material	Anodized aluminum		
Battery Pack	9 V Battery		
Display	Alphanumeric LCD display, 2 x 8 characters		
Temperature Display Resolution	increments		
Ambient Conditions	Temperature sensor: Pressure sensor:	Accuracy ± 0.3°C Accuracy ± 1.5mbar	Resolution ± 0.1 °C Resolution ± 0.1mbar
	Ambient conditions: Humidity:	Temperature 0 to 40°C 0 to 80% r.h.	

## Calibration & Support Services

#### Service and Calibration Program

EMD Chemicals Inc has the most comprehensive calibration and service program available for microbial air sampling. Our Gibbstown, New Jersey facility is ISO 9001 certified and GMP compliant. The services provided include:

- Service and repair for all MAS-100 and MAS-100 NT systems.
- Calibration of all MAS-100 systems using the DA-100 NT transfer standard.
- Calibration of the DA-100 and DA-100 NT transfer standards by primary flow standard.
- Calibration certification and traceability documentation provided with every calibration.

In addition to the above services, extended warranties and customized preventative maintenance programs are available. Contact EMD Chemicals at 800-222-0342 and ask for the Technical Service Department for more information.

#### Traceability & Calibration Accuracy

The sample collection volume for each MAS-100 NT system and measurements made with the DA-100 NT system are traceable to standards from The National Institute Standards and Technology (NIST). Traceability is not a guarantee of measurement accuracy, but a chain of documentation between the last measurement made and the referenced standard. The uncertainty (accuracy) of a measurement is determined by the combined uncertainties of

all measurements made by devices between the referenced standard and that device being calibrated, this is called the "chain of comparisons". With each link in the chain, additive uncertainty occurs. To minimize uncertainty and maintain accuracy, the number of links in the chain of comparison must be minimized and the uncertainty for each link must be documented. For this reason EMD Chemicals has employed a state of the art, critical

venturi based flow standard for the calibration of the DA-100 & DA-100 NT systems. This flow standard is calibrated directly by NIST providing only two links in the chain of comparisons between NIST and the MAS-100 NT. This is the highest level of flow accuracy available from any microbial air sampler manufacturer. You can have the confidence when monitoring critical environments that every sample volume collected is highly accurate.

### Validation /Training Support

EMD Chemicals provides complete validation documentation to help you through the validation process. Our Microbiology Specialists are experienced in environmental monitoring and can help with your

site specific validation protocol. Electronic versions of all validation protocols are also available. EMD Chemicals Microbiology Specialists also provide on site training and certification of personnel for the proper use of the MAS-100 Microbial Air Samplers and calibration of the MAS-100 with the DA-100 system. Contact your local EMD representative for more information.



## MAS-100 NT® Nova-LIMS Interface

EMD Chemicals Inc in cooperation with Novatek International, have created the first paperless solution for microbial air sampling. The MAS-100 NT is now compatible with the Nova-LIMS Environmental Monitoring (EM) program. You can enjoy the benefits of the industry's leading **Environmental Monitoring LIMS** Program and Microbial Air Sampler in the same application. This bidirectional interface provides data transfer and instrument programming between the MAS-100 NT and Nova-LIMS EM program. You can improve the efficiency and data integrity (accuracy) of your viable air monitoring program while at the same time tracking user and instrument history.

The MAS-100 NT Nova-LIMS interface provides a fully 21 CFR 11 compliant air sampling application. Password protected security levels are established for the MAS-100 microbial air sampler. The Nova-LIMS EM program allows the administrative user only to activate a special CFR 11 mode in the MAS-100 NT. This CFR 11 mode limits the standard user to the sample collection process only. All

MAS-100 NT instrument parameters and menus are locked out, preventing the daily user from inadvertently changing critical parameters such as collection volumes and start delay.

All MAS-100 NT instrument parameters can be programmed easily by the administrative user from a screen in the Nova-LIMS EM program. Key information such as the user ID and sampling locations automatically loaded into the MAS-100 NT from the Nova-LIMS EM program. Information from the MAS-100, such as instrument serial number, date / time of sample collection and volume collected, automatically upload to the Nova-LIMS program. Instrument alerts such as sample collection failure, low battery and calibration due dates are instantly recognized and flagged in the Nova-LIMS program.

EMD Chemicals Inc. is an authorized distributor of the Nova-LIMS products. To receive more information or on-site demonstration of these and other Nova-LIMS applications, contact your local EMD representative.



The MAS-100 NT comes equipped with a USB interface.



## MAS-100 NT Air Sampler

4.86641.0001



with hard carrying case, battery, 300-hole perforated lid, dust cover, mains charger, USB cable, 3mm allen key, and operator's manual on CD

mains charger, 03b cable, 3mm anch key, and operator 3 manuar on eb		
MAS-100 NT with 400 hole lid	4.86641.0400	
MAS-100 NT Perforated Lid, Aluminum, 300-hole	4.86643.0300	
MAS-100 NT Perforated Lid, Aluminum, 400-hole	1.09088.0002	
MAS-100 NT Perforated Lid, Stainless Steel, 400-hole	1.09821.0001	
MAS-100 NT Dust Cover, Aluminum	1.09084.0002	
MAS-100 NT Li-Ion Battery	4.86712.0001	
MAS-100 NT Validation Protocol	4.86638.0008	
MAS-100 NT Carrying Case	4.86730.0001	
MAS-100 NT Mains Charger	4.86629.0001	
MAS-100 NT Instrument Upgrade for Nova-LIMS Interface	4.86619.0001	

#### MAS-100 NT Ex Air Sampler, Explosion Proof

4.86700.0001





manis charger, obb cable, onthe aner key, and operator smar	iddi oli CD
MAS-100 NT Ex Perforated Lid, Aluminum, 300-hole	4.86643.0300
MAS-100 NT Ex Perforated Lid, Aluminum, 400-hole	1.09088.0002
MAS-100 NT Ex Dust Cover	1.09084.0002
MAS-100 NT Fx Carrying Case	4.86741.0001

## MAS-100 Eco Air Sampler

1.09227.00

with hard carrying case, battery, 400-hole perforated lid, dust cover, mains charger, 3mm allen key, and operator's manual on CD



mains charger, 3mm allen key, and operator's manual on CD	
MAS-100 Eco Perforated Lid, Aluminum, 400-hole	1.09088.0002
MAS-100 Eco Dust Cover, Aluminum	1.09084.0002
MAS-100 Eco NiMH Battery Pack	4.86504.0001
MAS-100 Eco Mains Charger	1.09128.0002
MAS-100 Eco Hard Case	4.86628.0001
MAS-100 Eco Tripod Adapter	1.09127.0002
MAS-100 Eco Dust Cover	1.09084.0002
MAS-100 Eco Validation Protocol	1.09001.0005



MAS-100 CG Ex Air Sampler	1.09327.0001
with sampling head (50 L/min), hose, mains charger, operator's	manual on CD
MAS-100 CG Ex Sampling Head, High Flow 100 L/min	1.09231.0001
MAS-100 CG Ex Sampling Head, Low Flow 50 L/min	1.09237.0001
MAS-100 CG Ex Hose	4.86503.0001
MAS-100 CG Ex Validation Protocol	1.09001.0006
MAS-100 CG Ex Mains Charger	4.86626.0001
MAS-100 CG Ex External Printer with communication cable	4.86708.0001





IP 66 version

With Communication Cabic	
MAS-100 ISO NT Air Sampler	4.50812.0002
with 300-hole sampling head	
MAS-100 ISO NT Air Sampler, IP66 Model with 300-hole sampling head	4.86701.0001
MAS-100 ISO NT Sampling Head, Stainless Steel, 300-hole with base, 300-hole perforated lid, and tri-clamp	4.86624.0001
MAS-100 ISO NT Sampling Head, Stainless Steel, 400-hole with base, 400-hole perforated lid, and tri-clamp	4.86707.0001
MAS-100 ISO NT Base for Sampling Head, Stainless Steel	4.86632.0001
MAS-100 ISO NT Perforated Lid, Stainless Steel, 300-hole	1.09821.0001
MAS-100 ISO NT Perforated Lid, Stainless Steel, 400-hole	4.86633.0001
MAS-100 ISO NT Tri-Clamp, Stainless Steel	4.86705.0001
MAS-100 ISO NT Dust Cover, Stainless Steel	4.86634.0001
MAS-100 ISO NT Validation Protocol	4.86638.0007
MAS-100 ISO NT Power Supply	4.86704.0001
MAS-100 ISO NT Ethernet Module	4.86625.0001





MAS-100 ISO NT Air Sampler (continued)	
MAS-100 ISO NT Elbow Joint with 2 Tri-Clamps	4.86642.0001
MAS-100 ISO NT Silicone Gasket	4.86706.0001
MAS-100 ISO NT Pressure Test Kit	1.09129.0001
MAS-100 RABS NT Air Sampler, Complete System	4.86631.0002
DA-100 NT Digital Anemometer	4.86640.0001
Nova-LIMS Environmental Monitoring Software	4.86605.0001
Nova-LIMS Calibration & Preventative	4.86604.0001
Maintenance Software	
Spare Parts And Accessories For Legacy Systems	4 00000 0000
MAS-100 Mains Charger	1.09085.0002
MAS-100 Tripod	1.09326.0001
MAS-100 Tripod Adapter - Quick Connect	1.09223.0002
MAS-100 Tube Adapter	1.09224.0002
MAS-100 Contact Plate Holder	1.09214.0001
MAS-100 Perforated Lid for Contact Plates	1.09213.0001
MAS-100 NiMH Battery Pack (for version 2.7x or higher)	1.09229.0002
MAS-100 NiCd Battery Pack (For Version 2.62 or lower)	1.09087.0002
MAS-100 Perforated Lid, Aluminum, 400-hole	1.09088.0002
MAS-100 Perforated Lid, Stainless Steel, 400-hole	1.09821.0001
MAS-100 Validation Protocol (2.4x)	1.09001.0002
MAS-100 Validation Protocol (2.62-2.73)	1.09001.0003
MAS-100 Validation Protocol (3.0x)	1.09001.0004
MAS-100 Computer Interface Cable for Nova-LIMS	1.09226.0002
MAS-100 Ex NiCd Battery Pack	1.09087.0002
MAS-100 Ex Validation Protocol	1.09001.0003
MAS-100 Ex Perforated Lid, Aluminum, 400-hole	1.09088.0002
MAS-100 Ex Validation Protocol	1.09001.0003
MAS-100 ISO Dust Cover, Aluminum	1.09823.0001
MAS-100 ISO Perforated Lid, Stainless Steel, 400-hole	1.09821.0001
MAS-100 ISO Dust Cover, Stainless Steel	1.09822.0001
DA-100 Silicone Calibration Ring	4.86502.0001

Note: The 300 hole perforated lid is compatible with legacy systems, but a specific calibration is required

## References

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Feller, W. "An Introduction to Probability Theory and its applications", John Wiley and Sons Inc., New York, 1950

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EMD Chemicals' products are warranted to meet the specifications set forth on their label/packaging/inserts at the time of shipment or, in the case of instruments/equipment, for a period of twelve (12) months from the date of delivery. This warranty does not extend to any product which has been subjected to misuse, neglect, or to use in violation of instructions furnished by EMD. This instrument warranty excludes consumables such as fuses, electrodes and other items of an expendable nature. EMD Chemicals' sole responsibility under this warranty shall be limited to replacement of non-conforming product. Prices and specifications are subject to change without notice. We reserve the right to discontinue items without prior notice.

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