



TORONTECH

MIXED NOXIOUS GAS CHAMBER



Mixed Noxious Gas Chamber

TT-SOM Mixed Noxious Gas Chamber is designed to perform controlled mixed flowing gas (MFG) corrosion testing under precisely regulated temperature, humidity, and gas concentration conditions. This mixed noxious gas chamber exposes materials, components, and assemblies to corrosive gas environments including H₂S, NO₂, Cl₂, and SO₂ to evaluate corrosion resistance and material degradation behavior.

The system creates a stable and repeatable test environment by combining accurate gas injection, uniform air circulation, and closed-loop temperature and humidity control. It is engineered for long-term reliability, corrosion resistance, and compliance with internationally recognized mixed gas corrosion test methods, making it suitable for qualification, comparison, and reliability testing programs.

APPLICATIONS

Mixed Noxious Gas Chamber Applications

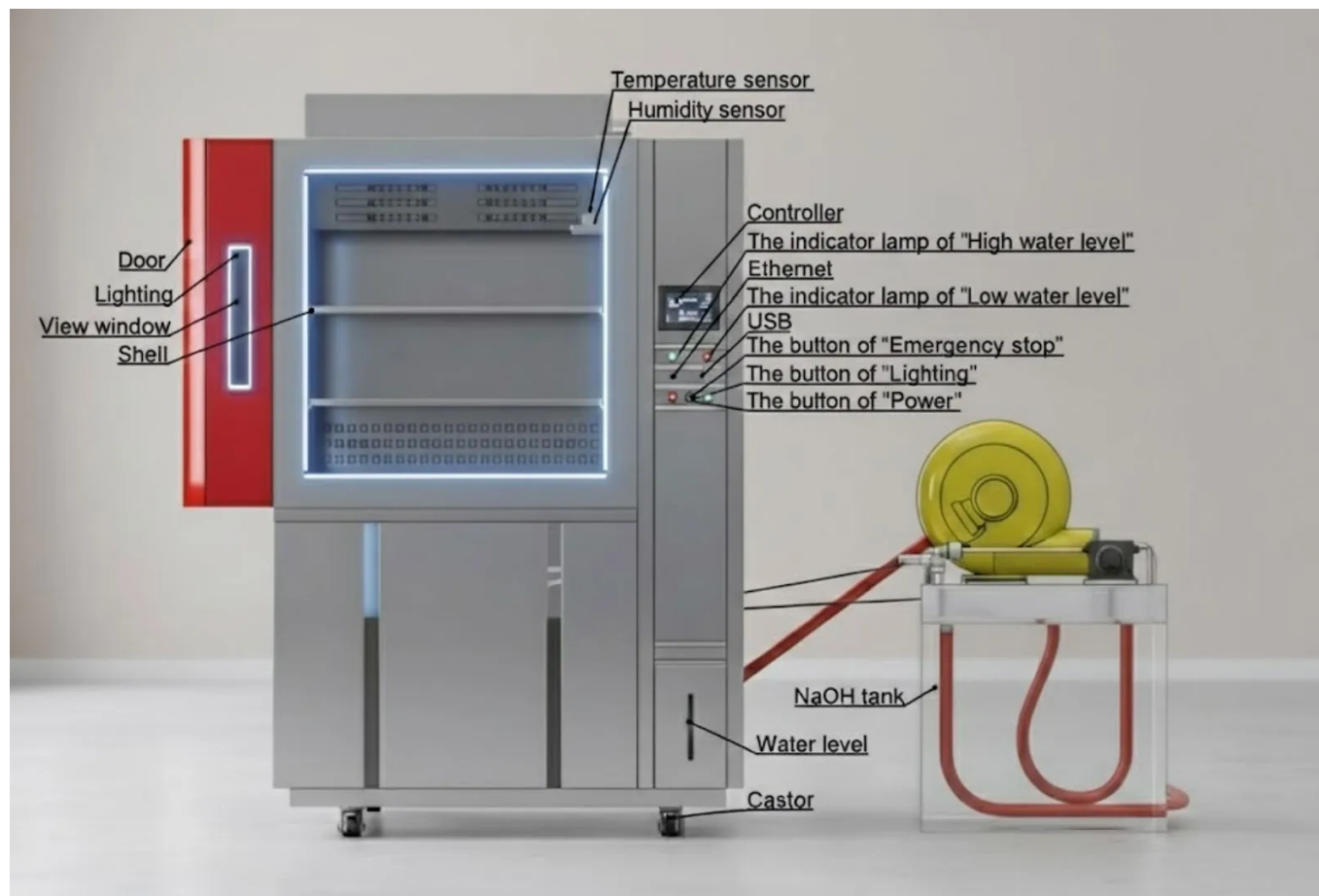
TT-SOM Mixed Noxious Gas Chamber is used across industries where materials and electronic components must withstand corrosive atmospheric conditions.

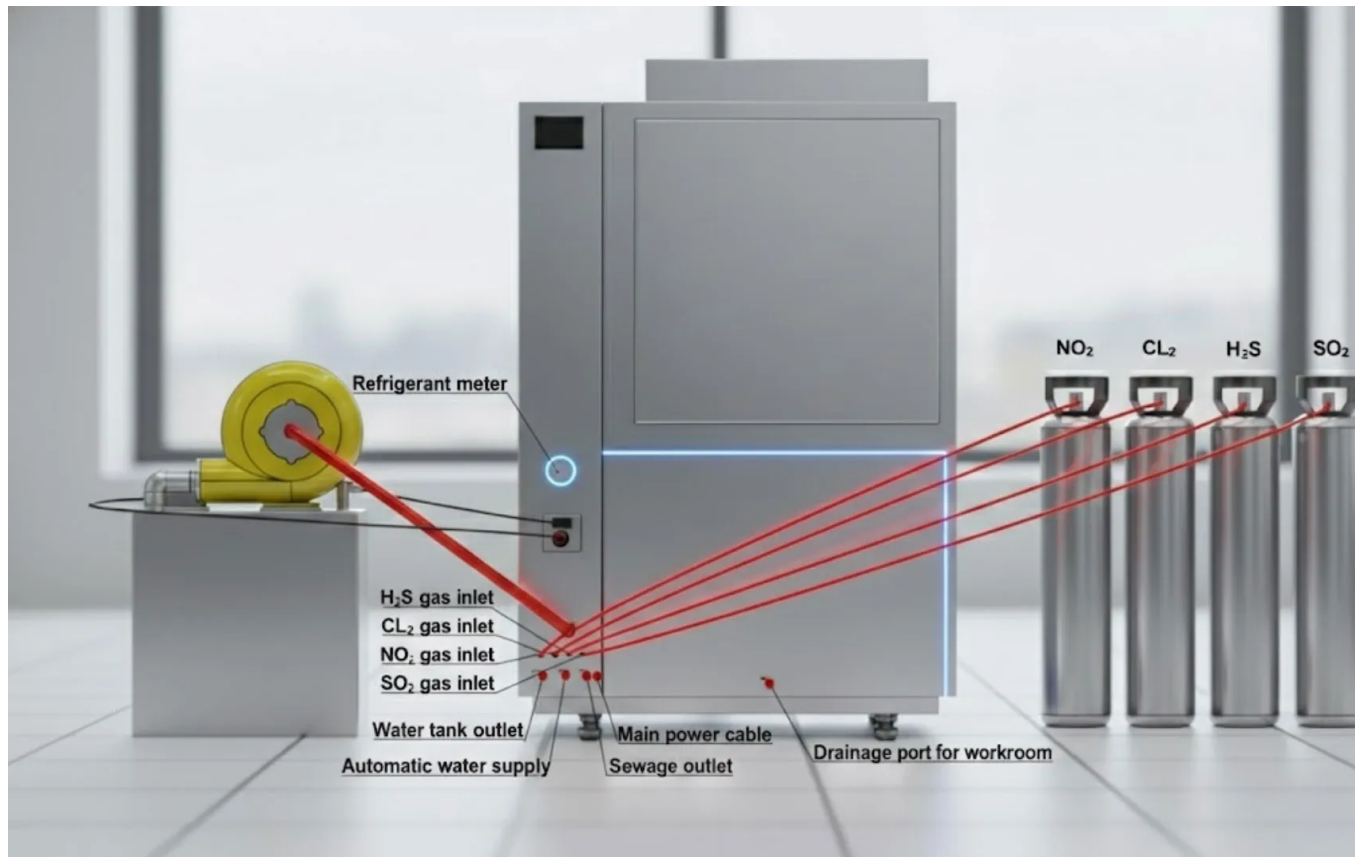
- Electronic Components and Assemblies
 - Used to assess corrosion susceptibility of connectors, circuit boards, contacts, and electronic housings exposed to sulfur- and chlorine-based gases.
- Automotive and Transportation Parts
 - Evaluates corrosion resistance of sensors, terminals, fasteners, and coated components operating in polluted or industrial environments.
- Telecommunications Equipment

- Supports reliability testing of network hardware, base station components, and communication modules under mixed gas exposure.
- Aerospace and Defense Materials
 - Verifies material stability and surface degradation behavior of critical components exposed to aggressive atmospheric conditions.
- Material Research and Quality Control
 - Provides accelerated corrosion data for material selection, coating validation, and comparative performance analysis in R&D and production environments.









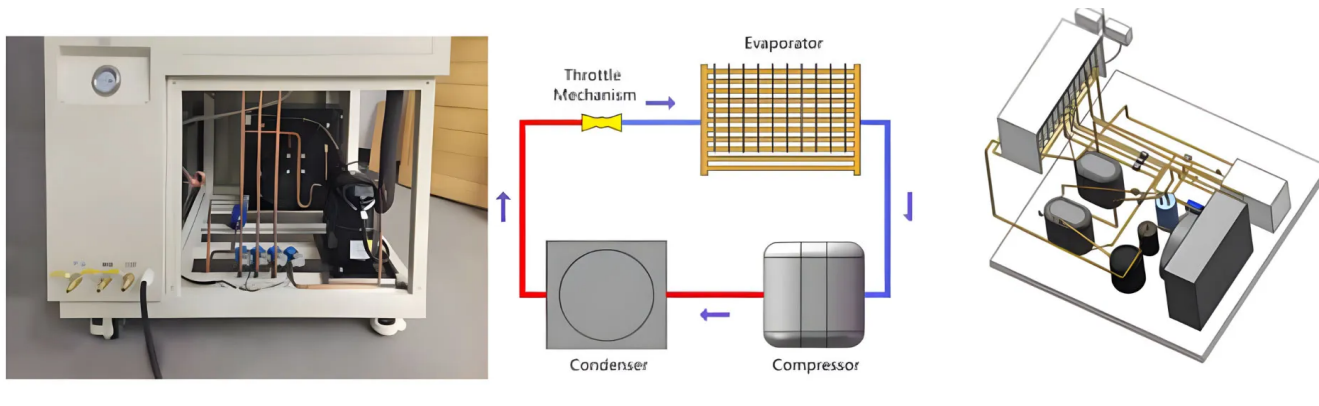
Standards

- IEC 60068-2-42: Environmental testing method focused on SO₂ corrosion testing (commonly used for assessing sulfur dioxide effects).
- IEC 60068-2-60: Mixed flowing gas corrosion testing method used for accelerated corrosion evaluation under controlled gas/temperature/RH conditions.
- ISO 9227: Salt spray (fog) corrosion testing reference often used alongside gas corrosion methods in corrosion qualification programs.
- ASTM B117: Salt spray testing reference widely used for comparative corrosion performance checks.
- JIS Z2371: Japanese salt spray testing reference used for corrosion evaluation and comparisons.

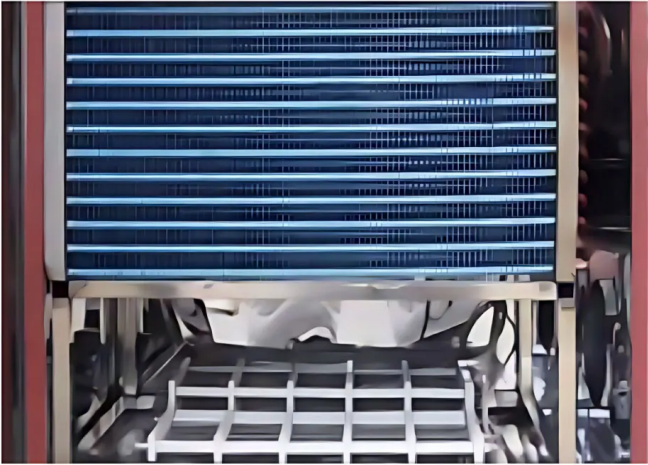
FEATURES

Mixed Noxious Gas Chamber Key Features

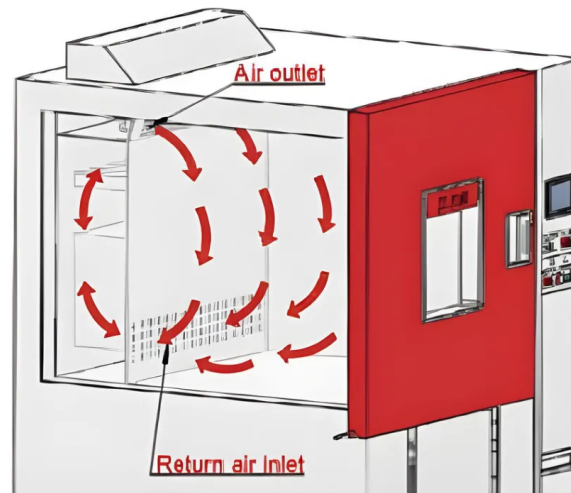
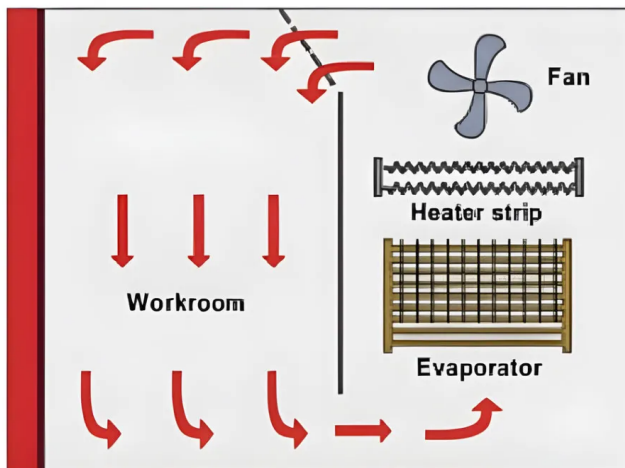
- Multi-Gas Corrosion Testing Capability
 - Supports controlled exposure to H_2S , NO_2 , Cl_2 , and SO_2 gases with adjustable concentrations for flexible test configurations.
- Precise Environmental Control
 - Maintains stable temperature, humidity, and gas concentration using PID-controlled systems and high-accuracy sensors.



- Corrosion-Resistant Construction
 - The test chamber interior is manufactured from SUS316 stainless steel, providing excellent resistance to chemical corrosion and long service life.



- Uniform Air Circulation
 - A high-performance centrifugal fan ensures even gas distribution and consistent environmental conditions throughout the working volume.



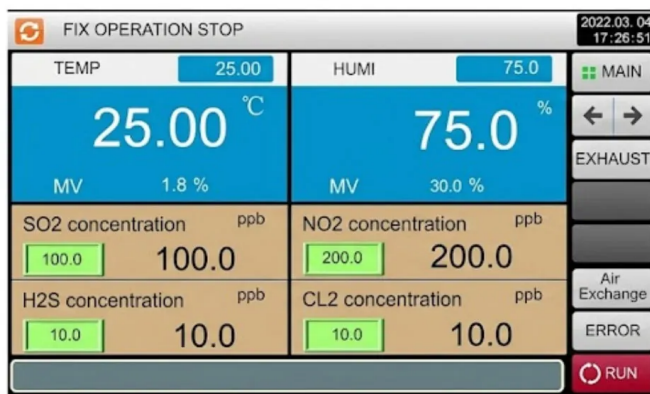
- Advanced Safety Design

- Integrated exhaust neutralization system with NaOH solution reduces harmful gas emissions and improves operator safety.



- Intuitive Control and Data Management

- Programmable color touchscreen controller supports fixed and programmed test modes, Ethernet communication, USB data export, and real-time parameter monitoring.



Core Principles: Gas Dynamics and Concentration Control

Getting a handle on how these test boxes behave is the only way to grab results that carry real weight. The logic behind the TT-SOM Mixed Noxious Gas Chamber series is really about keeping a firm, unwavering grip on reactive, Mixed Flowing Gas (MFG) clouds.

This includes aggressive agents like H_2S , NO_2 , Cl_2 , and SO_2 . The way it stays reliable is based on a few clear-cut rules:

- **The "Total-Uniformity" Rule:** We push air to cycle 3 to 10 times per hour using a high-performance centrifugal fan to eliminate stagnant spots. This perfectly even blend ensures your numbers end up being spot-on rather than just rough guesses.
- **Tracking the In-and-Out Flow:** Our TT-SOM gadgets handle the heavy lifting of watching exactly what enters the box versus what leaves it. By comparing concentrated incoming clouds to the thinned-out exiting air, your laboratory team can see exactly what the sample is doing.
- **Guiding the Swirl:** To prevent damage to standard electronic components, we use highly accurate computer models to predict how the air twirls inside. This guarantees the gas blends quickly and stays that way.

Engineering Standards and System Integrity

Torontech builds equipment that makes high-level scientific theories feel totally straightforward without draining your budget dry. We follow strict guidelines to keep your research simple:

Corrosion-Resistant SUS316 Construction

To stop the interior from soaking up your expensive gas, we manufacture the inside of every Mixed Noxious Gas Chamber using premium SUS316 stainless steel. It stays clean, bright, and completely corrosion-resistant against any chemical cocktail.

Precision Environmental Regulation

A heavy-duty French TECUMSEH compressor and highly sensitive PT100Ω sensors let you adjust the heat (ranging from 15°C to 100°C) and the moisture (between 30% and 98% RH). You control this tiny slice of a harsh environment right from a programmable color touchscreen.

Integrated Operator Safety Systems

Handling high concentrations of sulfur and chlorine can be risky. We focus on perfectly sealed boxes featuring an integrated exhaust neutralization system with a built-in NaOH solution. This setup ensures nasty fumes are disarmed far away from your breathing air.

TECHNICAL SPECIFICATIONS

Mixed Noxious Gas Chamber Technical Specification

Available Models: TT-SOM-100 / TT-SOM-225 / TT-SOM-500 / TT-SOM-800 / TT-SOM-1000

Model-Dependent Dimensions & Volume

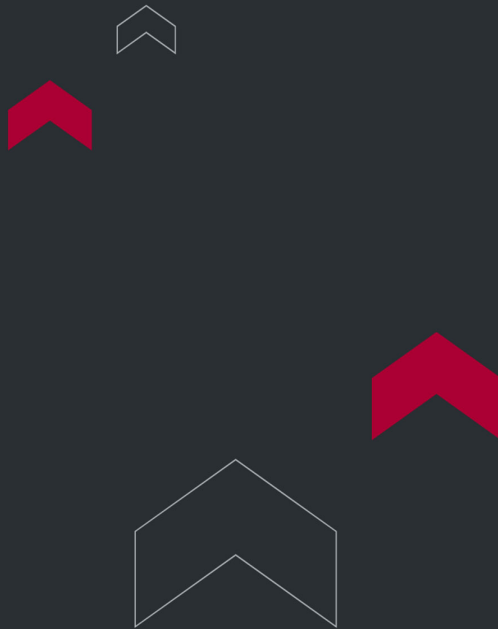
Parameter	TT-SOM-100	TT-SOM-225	TT-SOM-500	TT-SOM-800	TT-SOM-1000
Interior Volume (L)	100	225	500	800	1000
Internal Dimensions (mm)	400×500×500	500×600×750	700×800×900	800×1000×1000	1000×1000×1000

Parameter	TT-SOM-100	TT-SOM-225	TT-SOM-500	TT-SOM-800	TT-SOM-1000
Overall Dimensions (mm)	860×1050×1620	960×1150×1860	1180×1350×2010	1530×1550×2140	1750×1550×2140

Common Performance & System Specs

Parameter	Specification
Temperature Range	15°C to 100°C
Temperature Fluctuation	±0.5°C
Temperature Deviation	±2.0°C
Humidity Range	30% to 98% RH
Humidity Deviation	±1% RH
H ₂ S Concentration	10-100 ppb ±20 ppb (Adjustable)
NO ₂ Concentration	200 ppb ±20 ppb (Adjustable)
Cl ₂ Concentration	10-20 ppb ±5 ppb (Adjustable)
SO ₂ Concentration	100-500 ppb ±20 ppb (Adjustable)
Air Change Rate	3-10 times/h
Cooling System	Mechanical compression refrigeration system
Refrigerating Unit	French TECUMSEH compressor
Refrigerant	R449A
Heating Element	Nichrome heater
Humidifier	External isolation, stainless steel surface evaporation humidifier
Water Supply System	Water purification system; automatic water supply

Parameter	Specification
Dehumidification	Evaporator
Controller	Programmable color LCD touch screen controller; Ethernet connection, PC link
Temperature Sensor	PT100Ω / MV A-class



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