**General**

Water treatment and many other technical processes frequently require the use of oxidising gases such as chlorine or chlorine dioxide. These gases are highly toxic and corrosive. Therefore special precautions have to be taken in areas where such gases are used.

Air contaminated with oxidising gases will endanger plant personnel and equipment. If employees are exposed to low concentrations of these gases for extended periods, the safety limit will be reached. Higher concentrations will affect the respiratory system of the personnel and corrode machines resulting in costly repairs.

The gas leak detector CHLORATEKT® 2 monitors the contents of oxidising gases in the air, indicates leaks and warns the personnel in plants where chlorine or chlorine dioxide are generated, stored or metered.

The unit will initiate a visual and audible alarm if the MAK value is exceeded. The MAK value is the maximum permissible gas concentration in the air of an area where people are working.

MAK values are toxicological limit values. They were laid down by law to protect people at their job site against certain chemicals. As of 1981, the following MAK values are valid in the Federal Republic of Germany:

<table>
<thead>
<tr>
<th>Gas</th>
<th>Formula</th>
<th>cm³/m³</th>
<th>equivalent to ppm</th>
<th>mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>Cl₂</td>
<td>0.5</td>
<td>0.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Chlorine Dioxide</td>
<td>ClO₂</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Description of Operation**

The gas leak detector CHLORATEKT® 2 consists essentially of two items; the detector cell assembly which is connected by means of a coaxial cable to a control box. The detector cell comprises two platinum electrodes wrapped by a porous wick. The electrode are partly immersed into an electrolyte reservoir attached and thus kept constantly moist. One filling of the electrolyte reservoir is sufficient for approximately one year of continuous operation.

Should chlorine gas or chlorine dioxide gas be present in the surrounding air, an electro-chemical reaction by depolarisation will take place on the electrode; the electric current generated is proportional to the gas concentration in the air. An increase in the chlorine gas concentration is indicated on the electronic control box which is equipped with an indicator of 0...5 ppm Cl₂.

The desired alarm level is set by means of a potentiometer having a range between 0...5 ppm Cl₂. If two alarm levels are required an amplifier with two operational set points will be used.

When the gas concentration in the air exceeds the preset value, the leak detector will release a visual and audible alarm and operate an alarm relay. This alarm relay provides a voltage-free single pole double throw contact for use by the customer to actuate safety devices such as a solenoid valve in the chlorine gas concentration is indicated in the air. This unit is a very practical accessory for the physico-chemical calibration of the leak detector.

The combined TEST button and CELL FAILURE alarm light will flash at the following conditions:
- Electrolyte reservoir empty;
- Detector cell dry;
- Cable between cell and control box interrupted.

An internal circuit board provides for continuous output signal of 4...20 mA, 300 Ohms, corresponding to a gas concentration of 0...5 ppm Cl₂.

Wallace & Tiernan manufactures also a chlorine gas generator capable of generating adjustable chlorine gas concentrations in the air. This unit is a very practical accessory item for the physico-chemical calibration of the leak detector.

The detector cell is installed close to the place where the air is to be monitored. As chlorine is heavier than air, the cell is mounted approximately 350 mm from the floor. The ambient temperature should be in the range between -10°C and +50°C. The control box containing the electronic amplifier, the alarm horn and other alarm devices connected to the alarm output should preferably be installed in a chlorine-free room.

The distance between detector cell and control box may be adapted to the local requirements. When using a screened cable this distance may be up to 100 m. For distances of more than 2 m between cell and control box, a connection box must be used.
Prompt service is available from our headquarters in Mumbai. Additional data, such as dimension sheets, typical arrangements and auxiliary controls are available in other publications.
OTHER PRODUCTS AVAILABLE

- **S 10 K CHLORINATOR** ........................................ from 20 gms/hr to 10 Kgs/hr
- **V 10 K CHLORINATOR** ........................................ from 60 gms/hr to 10 Kgs/hr
- **V2000 CHLORINATOR** ........................................ From 1 Kg/hr to 56.5 Kgs/hr
- **V2100 CHLORINATOR** ........................................ From 1000 lbs to 10000 lbs/day
- **50-200 EVAPORATOR** ........................................ from 120 Kgs/hr to 200 Kgs/hr
- **DEPOLOX RESIDUAL ANALYSER** ......................... Upto 19.99 ppm
- **A 790 AMPEROMETRIC TITRATOR** ..................... Minimum 0.01 ppm or 0.001 ppm
- **CHLORINE LEAK ABSORPTION SYSTEM** ............... 1000 Kgs/hr of chlorine

- **CHLORINATION SYSTEM ACCESSORIES**

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**MANKIND DEMANDS WATER**

Manufactured based on the technology acquired from

![WALLACE & TIERNAN](image_url)

Manufacturing and Research & Development Centre, Navi Mumbai

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