

# **Scientific Evaluation of LiquiSmoke™**

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## **A Summary of the Scientific Evaluation Reports Produced by Maxim Technologies of Sioux Falls, South Dakota**

During testing conducted by Maxim Technologies, the following facts concerning the smoke generated by LiquiSmoke were determined, under the guidelines set by NIOSH – the National Institute of Occupational Safety and Health and OSHA – the Occupational Safety and Health Administration.

During the tests, Maxim Technologies collected a sample of the smoke generated by LiquiSmoke in a charcoal tube. The sample was sent to the Wisconsin Occupational Health Laboratory. A “GC Solvent Scan” was conducted to determine if the smoke generated by LiquiSmoke formed any hazardous compounds or conditions. The “GC” scan searched for 107 different hazardous organic compounds. Of the 107 items listed only .01 ppm petroleum distillates was found. The OSHA Permissible Exposure Limit is 500 ppm.

Further testing by Maxim Technologies found that ambient carbon monoxide levels were found to be zero. NIOSH regulations have determined that the “8 hour time weighted average” (TWA) for carbon monoxide to be 35 parts per million (ppm). During the duration of the test measurable TWA levels of LiquiSmoke ranged from 4.6 to 7.8 ppm – within the OSHA permissible exposure limit (PEL) set by OSHA.

Maxim Technologies also tested for carbon dioxide levels. Ambient levels were found to be at 330 ppm. The level of carbon dioxide during the entire LiquiSmoke test was determined to be 500 ppm. The OSHA permissible exposure limit (PEL) is 5000 ppm.

In addition, testing by Maxim Technologies was also performed to determine if usage of the product left any staining or odor. Residual staining and odor tests were conducted in a closed facility filled with LiquiSmoke. Time interval testing of filter paper samples exposed to LiquiSmoke was examined under a microscope at 40X magnification. In all cases no visible staining was present, along with no odor on any of the filter papers exposed to the smoke.

This summary is based on complete reports from Maxim Technologies of Sioux Falls South Dakota. Copies of these tests, as well as the findings of the Wisconsin Occupational Health Laboratory are available from Hurco Technologies.

# HURCO TECHNOLOGIES, INC.

## MSDS AND TEST DATA EXPLANATION

This package contains two different items. It contains an MSDS sheet, which is for the "raw" product only, and a Maxim Technologies report, which is for the "smoke".

Please note that only people who are using LiquiSmoke will be exposed to the "raw" product. Even though LiquiSmoke is 100% safe, there may be items in the MSDS sheet that may cause concern. For example, Section IV (First Aid Measures), we are required to give these instructions although the likelihood of a user ever having any of the symptoms does not exist. What is really important on the MSDS sheet is Section III (Hazards Identification). Under "medical condition", the National Toxicology Program, (NTP), the Occupational Safety and Health Administration, (OSHA), and the International Agency for Research on Cancer, (IARC) all list **no medical conditions** for LiquiSmoke. IARC makes special note that there are **no carcinogenic dangers**. To put it into perspective, some of the soda you drink can contain items considered carcinogenic; LiquiSmoke does not. You are exposed to greater dangers putting gas in your car or lawn mower than from handling LiquiSmoke.

Once the raw LiquiSmoke is vaporized, it develops different characteristics. We hired a private, nationally recognized laboratory, Maxim Technologies, Inc., who with the help of the Wisconsin Occupational Health Laboratory, tested our smoke. These tests were conclusive, there are **NO** dangers using LiquiSmoke. In every single category, including carbon monoxide, LiquiSmoke was tested at or well below the OSHA 8 hour Permissible Exposure Limit (PEL). Since it is the smoke your customers may be exposed to, these tests will assure them that there are no health concerns. However, you will need to warn your customers that although the smoke may be safe, it exposes possible infiltration of dangerous sewer gases. They should always be warned to evacuate a premise when smoke is detected.

Finally, we had Maxim test our LiquiSmoke for staining and residue. Again the tests were conclusive, there is no staining and no residue caused by LiquiSmoke. Your customers can rest assured that LiquiSmoke will not ruin their furniture or drapery.

If you have any questions or concerns about Hurco's LiquiSmoke, please give me a call at 1-800-888-1436.

Sincerely,  
Lyndon J. Hurley, President

# MATERIAL SAFETY

## DATA SHEET for

# HURCO

TECHNOLOGIES, INC.

### LiquiSmoke™

#### SECTION I Product Identification

TRADE NAME:

**Hurco LiquiSmoke™**

GENERAL OR GENERIC ID: Hydrotreated Middle Distillate  
DOT HAZARD CLASSIFICATION: N/A  
CHEMICAL FORMULA: Proprietary  
This material is in compliance with the  
Toxic Substances Control Act (15 USC 2601—2629).

#### SECTION II Composition, Information on Ingredients

INGREDIENT: Hydrotreated Middle Distillate  
CAS #: 64742-46-7  
PERCENT: 100

EXPOSURE INFORMATION

Ingredients	ACGIH TLV	STEL	OSHA Pel	STEL
Hydrotreated Middle Distillate	100 mg/m <sup>3</sup>	NA	NA	NA

Exposure limits expressed as 8-hour TWA concentrations in either parts per million (ppm), or milligrams per cubic meter (mg/m<sup>3</sup>).

#### SECTION III Hazards Identification

ROUTES OF ENTRY

Inhalation: Yes  
Skin: Yes  
Ingestion: Yes

EXPOSURE EFFECTS

Symptoms of Exposure: Headache, drowsiness, eye, respiratory or skin irritation, nausea, numbness.  
Acute Exposure Effects: Ingestion may cause nausea, vomiting and diarrhea.

Chronic Exposure Effects: Dermatitis, pneumonitis & pulmonary edema.

MEDICAL CONDITION

Aggravated by Exposure: NA  
Carcinogen Status: No  
NTP: No  
OSHA: No  
IARC: No

CARCINOGENICITY STMT: According to IARC Monographs, severely Hydrotreated oils, such as this product, are not considered carcinogenic. Nevertheless, good industrial hygienic practices are recommended.

#### SECTION IV First Aid Measures

##### Emergency and First Aid Procedures

Remove from contaminated atmosphere. Give artificial respiration if not breathing. Remove contaminated clothing. Thoroughly wash affected areas with soap and water. In case of eye contact, flush eyes with water for 10-15 minutes. SEEK IMMEDIATE MEDICAL CARE.

If swallowed, DO NOT INDUCE VOMITING.

#### SECTION V Fire and Explosion Data

Flashpoint: 265°F (129.43°C) COC  
Autoignition Temperature: NA  
LEL: NA  
UEL: NA  
Fire Fighting Procedures: SCBA may be required.  
Extinguishing Media: CO<sub>2</sub>, Dry Chemical, Foam  
Unusual Fire & Explosion Hazards: Water may cause frothing.

#### SECTION VI Accidental Release Measures

##### SPILL/RELEASE INSTRUCTIONS

Eliminate all sources of ignition. Contain with earthen like or petroleum absorbent material. Remove with grounded suction pump to salvage container. Remove all contaminated materials.

#### SECTION VII Handling & Storage Information

Keep away from all ignition sources (e.g. heat, flame, sparks, strong oxidizers). Bond and ground container.

#### SECTION VIII Exposure Controls/Personal Protection

Engineering Controls: No  
Local Exhaust: To control vapors.  
Mechanical Ventilation: For Confined Spaces.  
Respiratory Protection: NIOSH approved organic vapor respirator.  
Eye Protection: Chemical goggles or face shield.  
Glove Protection: PVC/equivalent resistant glove.  
Work/Hygienic Practices: Always minimize body contact. Wash areas of body contact promptly. Use a PVC/equivalent resistant apron where splash potential exists.

#### SECTION IX Physical & Chemical Properties

Physical Appearance: Water white liquid  
Product Odor: Negligible  
Specific Gravity: <1  
Solubility in Water: Insoluble  
Boiling Point: 470°F 243.31°C  
Freezing Point (F): NA  
Melting Point (F): 30°F -1.11°C  
Vapor Pressure: <0.1  
Reference: mmHg@70°F

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**SECTION X  
Stability & Reactivity Information**

Stability: Stable  
Hazardous Polymerization: Oxidizers  
Materials to Avoid: Heat & Flame  
Hazardous Decomposition: Carbon Monoxide and other petroleum decomposition products.

**SECTION XI  
Disposal Consideration**

Waste Management: Per Federal, State and local laws.

**SECTION IX  
Transportation Information**

Proper Shipping Name: NOT A DOT REGULATED MATERIAL  
(Packaging in excess of 3500 gal require an OIL SPILL prevention and response plan per 49 CFR 1).  
Hazard Class: NA  
UN/NA Number: NA  
Packaging Group: NA

All hazard precautions given in this data brochure must be observed.  
This brochure is for the unburnt LiquiSmoke Only. Test Data is available for LiquiSmoke "smoke" by contacting Hurco Technologies.

LAST ISSUE DATE:  
01/10/07

Questions Concerning LiquiSmoke  
(8:00-5:00 Central Time) M-F  
Please Call: 1-800-888-1436

**SECTION XIII  
Regulatory Information**

Hazardous under SARA Section a311: Yes  
Fire Hazard: No  
Sudden Release: No  
Immediate: No  
Reactive Hazard: No  
Delayed: Yes

SARA Section 313 Listed Components: None

**SECTION IX  
Other Information**

**NFPA 704M Rating**

NFPA Fire Code: 1  
NFPA Health Code: 1  
NFPA Reactivity Code: 0  
NFPA Other: Blank

The information contained in this MSDS is believed to be accurate, but is not warranted to be, whether originated with Hurco Technologies or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to the circumstances.

**NFPA Key**

0 = Insignificant  
1 = Slight  
2 = Moderate  
3 = High  
4 = Extreme

**SECTION IX  
Definitions**

DOT = Department of Transportation  
CAS = Chemical Abstract Service  
ACGIH = American Conf. Of Governmental Industrial Hygienists  
OSHA = Occupational Safety and Health Administration  
TLV = Threshold Limit Value  
STEL = Short Term Exposure Limit  
PEL = Permissible Exposure Limit  
TWA = Time Weighted Average  
NTP = National Toxicology Program  
IARC = International Agency for Research on Cancer  
LEL = Lower Explosion Limit  
UEL = Upper Explosion Limit  
SCBA = Self Contained Breathing Apparatus  
CFR = Code of Federal Regulations  
NFPA = National Fire Protection Agency  
EPA = Environmental Protection Agency

**FOR ADDITIONAL  
NON-EMERGENCY MSDS INFORMATION CONTACT:**

**HURCO**  
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