GRAINGER
FOR THE ONES WHO GET IT DONE

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Common Name: QUARTZ METAL HALIDE LAMPS - QMH

Manufacturer: GE CONSUMER & INDUSTRIAL LIGHTING

MSDS Revision Date: 3/1/2009

Grainger Item Number(s): 1C251, 1C263, 1C279, 1C344, 1C347, 1C854, 1E099, 1E279, 1E637, 1E639, 1E641, 1E643, 1E671, 1E674, 1E686, 1E690, 1E692, 1E694, 1F276, 1F278, 1F346, 1F348, 1F396, 1F398, 1G980, 1K015, 1K425, 1MM51, 1MM55, 1PCY8, 1PCY9, 1PCZ1, 1PCZ2, 1PCZ3, 1PCZ4, 1PCZ5, 1RD93, 1RF30, 1RF31, 1TJP9, 1TJR1, 1TJR2, 1TJR3, 1TJR4, 1TJR5, 1TJR6, 1TJR7, 1TJR8, 1TJT1, 1TJT2, 1TJT3, 1VZ60, 2DZW7, 2DZW8, 2DZW9, 2DZX1, 2DZX2, 2DZX3, 2DZX4, 2DZX5, 2DZX6, 2DZX7, 2DZX8, 2DZX9, 2F103, 2F105, 2F109, 2F111, 2F192, 2F196, 2F202, 2F942, 2F944, 2F968, 2F970, 2PB27, 2PB28, 2TJ25, 2TJ26, 2TJ27, 2TJ28, 2TJ29, 2V658, 2V659, 2V712, 2VAD8, 2VAD9, 2XKW9, 2XKX1, 2XKX2, 2XKX5, 2XKX6, 2XKX7, 2YGD2, 2YGD3, 2YGD4, 2YGD5, 2YGD6, 2YGD7, 2YGD8, 2YGD9, 2YGE1, 2YGE2, 2YGE3, 2YGE4, 2YGE5, 2YGE6, 2YGE7, 2YGE8, 2YGE9, 3APK1, 3APK2, 3APK3, 3APK4, 3DXR7, 3DXR8, 3DXR9, 3DXT1, 3DXT2, 3DXT3, 3DXT4, 3DXT5, 3JJ92, 3JJ96, 3JJ97, 3JK01, 3JK02, 3JK41, 4DA14, 4DA27, 4LV87, 4LV88, 4PL04, 4PL05, 4PL06, 4PL07, 4PL08, 4V484, 4V516, 4V518, 4V550, 4V561, 4V565, 4V596, 4V603, 4WW46, 4WW54, 4XMA5, 5CVK3, 5CVK4, 5CVK5, 5GTN0, 5GTN1, 5HB77, 5HB78, 5HB79, 5HB80, 5HB81, 5HB82, 5HB83, 5HB84, 5HB87, 5HB88, 5HB89, 5HB90, 5HB91, 5HB92, 5HB93, 5HB94, 5TB70, 5V658, 5V691, 5V978, 5XN33, 5XN44, 5XN58, 5XN59, 5XN60, 5XN61, 5XN64, 5XN65, 5XP29, 5XP46, 5XP47, 5XP48, 6V630, 6V698, 6V699, 6V746, 6V747, 6V748, 6V749, 6V751, 6V752, 6V753, 6V754, 6V755, 6V756, 6V757, 6V758, 6V759, 6XT44, 6XT76, 6XT77, 6XT89, 6XT90, 6XT91, 6XT92, 6XT93, 6XT94, 6XV24, 6XV25, 6XV27, 6XV28, 6XV41

Manufacturer Model Number(s):

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MATERIAL SAFETY DATA SHEETS (MSDS)

GE

GE CONSUMER & INDUSTRIAL - LIGHTING

LAMP MATERIAL INFORMATION SHEET - QUARTZ METAL HALIDE LAMP

INFORMATION AND APPLICABILITY:
THE MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) FOR REGULATED CHEMICALS UNDER, 21 CFR 1900.1200 ARE NOT APPLICABLE TO MANUFACTURED ARTICLES. GE METAL HALIDE LAMPS ARE CLASSIFIED AS ARTICLES, AND THEREFORE EXEMPT FROM THIS REGULATION.

NO MATERIAL CONTAINED IN A LAMP IS RELEASED DURING NORMAL USE AND OPERATION.

THE FOLLOWING INFORMATION IS PROVIDED AS A COURTESY SERVICE TO OUR CUSTOMERS. THIS LAMP MATERIAL INFORMATION SHEET CONTAINS APPLICABLE MATERIAL SAFETY DATA SHEET INFORMATION.

I. PRODUCT IDENTIFICATION

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GE QUARTZ METAL HALIDE LAMPS - QMH:
APPLICABLE LAMP TYPES: MVR, MVT, MPR AND MXR

GE CONSUMER & INDUSTRIAL - LIGHTING
1975 NOBLE ROAD
NELA PARK
CLEVELAND, OH 44112

(216) 266-2222

II. LAMP MATERIALS AND HAZARDOUS INGREDIENTS

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GLASS:
THESE LAMPS CONSIST OF AN INNER QUARTZ ARC TUBE ENCLOSED IN AN OUTER ENVELOPE OF HEAT-RESISTANT GLASS. DEPENDING ON THE LAMP TYPE, THE ENVELOPE IS EITHER CLEAR, OR COATED WITH ONE OF TWO DIFFERENT MATERIALS. THE "MVR," "MVT" AND "MPR" LAMPS ARE COATED WITH A PHOSPHOR MATERIAL ON THE INSIDE OF THE BULB, WHILE "MXR" LAMPS ARE COATED WITH A DIFFUSING MATERIAL.

PHOSPHOR:
THE PHOSPHOR USED ON THE INSIDE SURFACE OF THE OUTER ENVELOPE OF COATED LAMPS CONSISTS OF YTTRIUM VANADATE PHOSPHATE. THIS MATERIAL, LIKE MOST VANADIUM COMPOUNDS, IS RELATIVELY INSOLUBLE, AND APPEARS TO HAVE A MUCH LOWER TOXICITY THAN VANADIUM PENTOXIDE, BUT MAY ELICIT SOME SIMILAR SYMPTOMS AT HIGH EXPOSURE LEVELS.

EXCESSIVE INHALATION EXPOSURE TO VANADIUM PENTOXIDE MAY RESULT IN IRRITATION OF THE NASAL PASSAGES AND RESPIRATORY TRACT, COUGH, DIFFICULTY IN BREATHING, AND BRONCHITIS. HOWEVER, THE YTTRIUM VANADIUM PHOSPHATE FROM THE BREAKAGE OF ONE OR A SMALL NUMBER OF LAMPS SHOULD NOT RESULT IN A SIGNIFICANT EXPOSURE.

THE PHOSPHOR USED ON SOME LAMPS MAY ALSO CONTAIN THE ADDITION OF A SMALL AMOUNT OF MAGNESIUM GERMANATE PHOSPHOR, A TOXICOLOGICALLY RELATIVELY INERT MATERIAL.

THE MATERIAL USED AS A DIFFUSER IN THE "MXR" LAMPS IS SPECIALLY PREPARED KAOLIN CLAY THAT CONTAINS NO CRYSTALLINE SILICA OR ASBESTOS AS IMPURITIES. THESE TYPES OF CLAYS ARE GENERALLY CONSIDERED TO BE TOXICOLOGICALLY RELATIVELY INERT MATERIALS.

ARC TUBE:

THE QUARTZ ARC TUBE CONTAINS A SMALL AMOUNT OF MERCURY, RANGING FROM LESS THAN 5 MILLIGRAMS IN LOW WATTAGE LAMPS, UP TO 165 MG IN A 1500-WATT LAMP. FURTHER, THE ARC TUBE CONTAINS A SMALL AMOUNT OF INERT GAS, ARGON, USED AS A FILL GAS. ARGON IS A STABLE, CHEMICALLY INERT GAS. A FEW LAMP TYPES MAY ALSO MIX A SMALL QUANTITY OF KR-85 WITH ARGON INSIDE THE ARC TUBE. KRYPTON-85 IS USED TO IMPROVED IONIZATION AND STARTABILITY OF THE LAMP. IF PRESENT, THE ACTIVITY LEVEL OF KR-85 WILL RANGE FROM 0.04 - 0.86 MICROCURIES ((MICRO)Ci) (1.57-31.9KBQ). QUARTZ ARC TUBES ALSO CONTAIN A SMALL AMOUNT OF THORIUM EMBEDDED WITHIN THE TUNGSTEN ELECTRODE TO IMPROVE STARTING PERFORMANCE. IF THORIUM IS PRESENT IN EITHER THE ELECTRODE OR DOSE, THE TOTAL ACTIVITY OF TH-232 IS LESS THAN 0.004 (MICRO)Ci (0.148KBQ). THERE WOULD BE NO SIGNIFICANT EXPOSURE FROM LAMP BREAKAGE.

ALSO CONTAINED WITHIN THE ARC TUBE ARE SMALL AMOUNTS OF OTHER MATERIALS

ALSO CONTAINED WITHIN THE ARC TUBE ARE SMALL AMOUNTS OF OTHER MATERIALS, REFERRED TO AS THE DOSE. THE COMBINATION OF THESE MATERIALS WITHIN THE PLASMA DISCHARGE CREATES THE "WHITE LIGHT" OF QMH LAMPS. THESE COMPOUNDS INCLUDES SODIUM AND SCANDIUM IODIDE, AND IN SOME CASES THORIUM IODIDE AND CADMIUM. NONE OF THESE MATERIALS IS EXPECTED TO BE A HAZARD IN THE SMALL QUANTITIES PRESENT IN THE ARC TUBE. THE COATING ON THE END(S) OF THE ARC TUBE IS ALUMINUM OXIDE, A MATERIAL GENERALLY CONSIDERED TO HAVE A LOW ORDER OF TOXICITY.

METALS:
INTERNALLY, THE SUPPORT WIRES USED IN THE LAMP CONSTRUCTION ARE MADE FROM NICKEL-COATED IRON OR STAINLESS STEEL WHILE THE ELECTRODES ARE TUNGSTEN. MANY OF THE METAL HALIDE TYPES WILL USE A BRASS BASE AND HAVE LEAD-SOLDERED CONNECTIONS TO THAT BASE.

GETTERS:
GETTERS EMPLOYED WITHIN THE OUTER ENVELOPE ARE USE TO EXTEND THE LIFE OF THE LAMP. QUARTZ METAL HALIDE LAMPS TYPICALLY USE EITHER, ZIRCONIUM ALUMINUM OR BARIUM PEROXIDE GETTERS. THESE GETTERS ARE IN SOLID FORM AND DO NOT PRESENT AN EXPOSURE RISK ON INTACT OR BROKEN LAMPS.

GASES:
THE OUTER ENVELOPE OF THE QMH LAMP IS FILLED WITH ARGON TO A SUB-ATMOSPHERIC PRESSURE. ARGON IS A STABLE, CHEMICALLY INERT GAS.

III. HEALTH CONCERNS

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MERCURY EXPOSURE:
THE AIR CONCENTRATION OF MERCURY RESULTING FROM THE BREAKAGE OF ONE OR A SMALL NUMBER OF LAMPS SHOULD RESULT IN NO SIGNIFICANT EXPOSURE TO THE INDIVIDUAL. HOWEVER, IF BREAKING A LARGE NUMBER OF LAMPS FOR DISPOSAL, APPROPRIATE MONITORING, CONTROLS, AND EQUIPMENT SHOULD BE IMPLEMENTED TO CONTROL AIRBORNE MERCURY AND DUST LEVELS OR SURFACE CONTAMINATION. SUCH WORK SHOULD BE DONE IN A WELL-VENTILATED AREA, AND LOCAL EXHAUST VENTILATION OR PERSONAL PROTECTIVE EQUIPMENT MAY BE NEEDED. COMPLY WITH ALL APPLICABLE REGULATIONS.

ULTRAVIOLET (UV) RADIATION:
THE QUARTZ ARC TUBE, WHEN OPERATING, GENERATES A CONSIDERABLE AMOUNT OF ULTRAVIOLET RADIATION. THE UV IS FILTERED TO ACCEPTABLE LEVELS BY THE GLASS OUTER ENVELOPE DURING NORMAL USE. HOWEVER, IF THE OUTER ENVELOPE IS BROKEN,

THE UV FILTERING IS LOST.

LAMPS HAVING ORDERING CODES BEGINNING WITH THE LETTERS "MVR", "MPR" OR "MXR" HAVE THE FOLLOWING R-WARNING NOTICE REQUIRED UNDER FEDERAL REGULATION 21 CFR 1040.30:

"WARNING:
THIS LAMP CAN CAUSE SERIOUS SKIN BURN AND EYE INFLAMMATION FROM SHORTWAVE ULTRAVIOLET RADIATION IF OUTER ENVELOPE OF THE LAMP IS BROKEN OR PUNCTURED. DO NOT USE WHERE PEOPLE WILL REMAIN FOR MORE THAN A FEW MINUTES UNLESS ADEQUATE SHIELDING OR OTHER SAFETY PRECAUTIONS ARE USED. LAMPS THAT WILL AUTOMATICALLY EXTINGUISH WHEN THE OUTER ENVELOPE IS BROKEN OR PUNCTURED ARE COMMERCIALLY AVAILABLE.

THIS LAMP CERTIFIED TO COMPLY WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

USA: 21 CFR 1040.30

CANADA: SOR/80-381"

THE SELF-EXTINGUISHING METAL HALIDE LAMPS REFERRED TO ABOVE HAVE ORDER CODES BEGINNING WITH THE LETTERS "MVT." IF THE OUTER GLASS ENVELOPE OF A SAF-T-GARD LAMP IS BROKEN, ALTHOUGH THE ARC TUBE WILL HAVE SELF-EXTINGUISHED, ITS SUPPORT STRUCTURE WILL STILL BE ELECTRICALLY CONNECTED AND COULD PRESENT AN ELECTRICAL SHOCK HAZARD. THEREFORE, REGARDLESS OF THE TYPE, IF THE OUTER ENVELOPE OF THE LAMP IS BROKEN, TURN THE POWER OFF BEFORE REPLACING THE LAMPS.

FOR ADDITIONAL INFORMATION ON PROTECTION FROM UV RADIATION, VISIT THE FDA WEBSITE FOR MORE INFORMATION:
HTTP://WWW.FDA.GOV/CDRH/RADHEALTH/PRODUCTS/URBURNS.HTML

IV. FIRE AND EXPLOSION DATA

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WARNING:
UNEXPECTED LAMP RUPTURE MAY CAUSE INJURY, FIRE, OR PROPERTY DAMAGE. DO NOT USE LAMP BEYOND RATED LIFE AND ADHERE TO ALL APPLICABLE CAUTION AND WARNING NOTICES. TO FURTHER REDUCE THE POSSIBILITY OF RUPTURE, TURN LAMP OFF AT LEAST ONCE FOR 15 MINUTES PER WEEK.

AN ARC TUBE RUPTURE CAN BURST AND SHATTER THE OUTER GLASS BULB RESULTING IN THE DISCHARGE OF GLASS FRAGMENTS AND EXTREMELY HOT QUARTZ PARTICLES (AS HIGH AS 1100 DEG. C). THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS, AND FIRE.

CAUTION AND WARNING NOTICES FOR EACH GE PRODUCT MAY BE VIEWED ONLINE AT HTTP://WWW.GELIGHTING.COM/

FURTHER GUIDANCE ON THE APPLICATION AND USE OF QUARTZ METAL HALIDE LAMPS IS AVAILABLE FROM NEMA DOCUMENT LSD 25, BEST PRACTICES FOR METAL HALIDE LIGHTING SYSTEM, PLUS QUESTIONS AND ANSWERS ABOUT LAMP RUPTURES IN METAL HALIDE LIGHTING SYSTEMS. LSD 25 MAY BE VIEWED ONLINE AT HTTP://WWW.NEMA.ORG/

V. DISPOSAL CONCERNS

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TCLP:
A TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST CONDUCTED ON THE LAMP FOR LEAD OR MERCURY COULD CAUSE THE LAMP TO BE CLASSIFIED AS A HAZARDOUS WASTE. METAL HALIDE LAMPS USE LEAD SOLDER ON THE LAMP BASE AND MERCURY IN THE ARC TUBE. THE LEAD SOLDER OR MERCURY VAPOR SHOULD POSE LITTLE RISK OF EXPOSURE UNDER NORMAL USE AND HANDLING. WHILE SMALL NUMBERS OF THESE LAMPS PLACED IN THE ORDINARY HOUSEHOLD TRASH SHOULD NOT APPRECIABLY AFFECT THE NATURE OR METHOD OF DISPOSAL OF THE TRASH IN MOST STATES, UNDER SOME CIRCUMSTANCES DISPOSAL OF THESE LAMPS IS REGULATED. MANY BUSINESSES IN THE UNITED STATES MANAGE THESE LAMPS AS UNIVERSAL WASTES. YOU SHOULD REVIEW YOUR WASTE HANDLING PRACTICES TO ASSURE THAT YOU DISPOSE OF WASTE LAMPS PROPERLY.

SOME STATES REQUIRE ALL MERCURY CONTAINING LAMPS TO BE RECYCLED, CONTACT YOUR STATE ENVIRONMENTAL DEPARTMENT FOR ANY REGULATIONS THAT MAY APPLY. TO CHECK STATE REGULATIONS OR TO LOCATE A RECYCLER, GO TO HTTP://WWW.LAMPRECYCLE.ORG/ OR CALL 1-800-435-4448.

QUARTZ METAL HALIDE LAMPS - LMIS

MARCH 2009 - SUPERSEDES AUGUST 2004

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