# « « « « ATTENTION » » » »

## PLEASE READ THIS MANUAL
## BEFORE USING THE STUD HOLE PLUGS AND TOOLS

*WARNING:* *The threads on the nylon portion of the Stud Hole Plug are exposed and may be damaged through rough handling.*

*WARNING:* *Do not tape the nylon threads to protect them from damage. Some adhesive from the tape may be left on the threads and eventually transferred to the stud hole threads thereby hindering removal of the plug.*

WARNING: *Do not exceed torque values. This may cause damage to the threads and hinder removal. Damaging the nylon threads will render the plug useless.*

# *MASTER-LEE ENGINEERED PRODUCTS STUD HOLE PLUGS*

The Master-Lee Engineered Products Stud Hole Plug for sealing the reactor flange stud hole during refueling operations is simple, inexpensive, and effective. Instead of the complicated squeezing of rubber seals or expanding of "O" rings as in other Stud Hole Plug designs, the Master-Lee Engineered Products Stud Hole Plug uses the tried and true method of a twisting stopper into the hole for a complete seal. This design also makes manufacturing much less expensive, therefore, reducing the final cost of the plug.

The unique design of this Stud Hole Plug enables it to seal at the top of the stud hole flange. Because of the stud hole being fully threaded, this seal provides a positive stop to water trying to enter the stud hole at the top of the reactor flange. The threaded portion of the plug is made of nylon to prevent damage to the stud hole threads and the threads are undersized to preclude sticking in the hole due to expansion.

The Stud Hole Plug Installation/Removal Tool uses a bar that slides into the inverted "U" handling bracket of the plug for lifting, threading, and unthreading of the plug into and out of the hole. When fully installed, the top of the plug protrudes approximately one inch [25mm] above the reactor flange.

The Master-Lee Stud Hole Plug System requires minimal training for use and maintenance.

## *INSTALLATION WITH TOOL*

1. Lubricate the EPDM rubber seal of the stud hole plug with a small amount of vacuum grease. Master-Lee recommends Dow Corning Molykote 111 Compound. See attachment A for MSDS.

2. Ensure that the sealing area is clean and free of loose debris, which could interfere with the rubber seal making good contact. Master-Lee recommends using a tool like the Master-Lee RV Stud Hole Cleaner Part No. E2162 (for 6 inch) or E1348 (for 7 inch).

3. Place the plug on the floor with the steel plate facing upward.

4. Position the Tool over the plug with the "U" foot at the bottom and the 1/2 inch square drive at the top.

5. Slide the foot of the tool sideways to engage it under the inverted 'U' handling bracket.

6. Using the plug tool, lower the plug through the reactor head flange and into the stud hole.

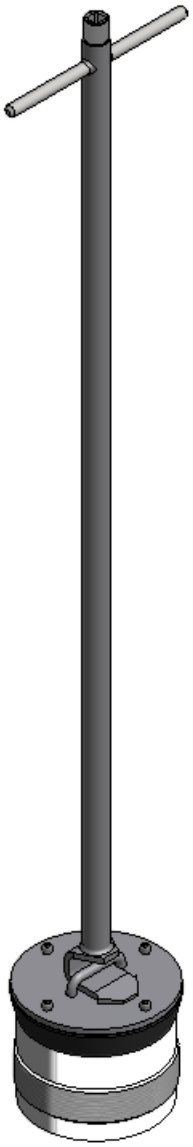
7. When the plug contacts the stud hole threads, turn it counterclockwise 1/2 turn to ensure proper thread engagement.

8. Turn the stud hole plug into the hole (clockwise) until the rubber seal contacts the reactor vessel flange and/or you have attained the correct number of turns (proper thread engagement).

9. Use a torque wrench attached to the 1/2" drive adapter, torque the plug to 20-25 foot-pounds [27-34Nm].

NOTE: Use caution not to over tighten the plug on initial installation using the T-handles. If the maximum torque is indicated on first check, plug should be loosened then retightened with the torque wrench.

10. Slide the tool out of the inverted "U" handling bracket and remove.



## *REMOVAL WITH TOOL*

1. Install the handling tool into the hole in the reactor head with the foot at the bottom and T-handle at top.

2. Lower the stud hole plug tool into the reactor head hole until it contacts the top of the plug.

3. Slide the tool sideways to engage it in the inverted “U” handling bracket on the Stud Hole Plug.

4. Use a 1/2" drive ratchet or breaker bar in the top square of the tool and loosen the Stud Hole Plug. (Turn Counterclockwise)

5. Continue to turn the plug counterclockwise until it is disengaged from all of the threads.

6. Lift the tool and plug out of the reactor head and safely store the plug.

# *STUD HOLE PLUG MAINTENANCE*

Maintenance of the Stud Hole Plug consists primarily of cleaning, replacement of the rubber seal if necessary, and inspection of the nylon threads.

Cleaning of the plug may be accomplished with either hand wiping or freon cleaning. Be careful during the cleaning phase not to damage the rubber seal or the exposed threads on the nylon plug portion.

## INSPECTION

Prior to each use and after removal from the reactor head the Stud Hole Plug should be inspected for damage and wear. Inspect the exposed threads on the nylon portion of the plug. The threads should not be stripped or crushed. Debris in the threads should be carefully removed.

Inspect the rubber seal area for chips, cuts, deep scratches, or permanent indentations. Some denting may be visible immediately after removal of the plug from the reactor head. This deformation will disappear after a short time. Small chips or nicks in the seal are OK, although no attempt should be made to smooth out these irregularities, this may compromise the sealing capability of the plug. Reapply lubricant before next use.

## MAINTENANCE

When inspection of the rubber seal indicates the seal has been damaged, the seal can be replaced by using the follow steps:

1. Remove the four 1/4 inch x 2 inch long socket head cap screws from the steel top plate.

2. Lift the steel top plate from the rubber seal. The top plate may be stuck to the seal and require a tool to pry it off. Use caution to not damage the seal while prying.

3. Remove the old seal from the nylon plug and replace with a new seal.

4. Replace the top plate.

5. Reinstall the socket head cap screws until they contact the stainless steel top plate.

6. Tighten the four hold-down screws in a crisscross pattern not to exceed 25-30 inch pounds [2.8-3.4 Nm] to pull the plate firmly against the rubber seal. The screws will loosen as the adjacent screws are tightened, continue to retorque until all 4 screws have uniform tightness.

ATTACHMENT A

MSDS SHEETS FOR:

DOW CORNING MOLYKOTE 111 COMPOUND

DOW CORNING

# DOW CORNING CORPORATION
# Material Safety Data Sheet


Version: 2.0
Revision Date: 2013/02/21

# MOLYKOTE(R) 111 COMPOUND

## 1. PRODUCT AND COMPANY IDENTIFICATION

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

**24 Hour Emergency Telephone: (989) 496-5900**
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 01889834
Revision Date: 2013/02/21

Generic Description: Silicone grease.
Physical Form: Grease
Color: Translucent white
Odor: Odorless

NFPA Profile: Health 0 Flammability 1 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

## 2. HAZARDS IDENTIFICATION

### POTENTIAL HEALTH EFFECTS

**Acute Effects**

Eye: Direct contact may cause temporary redness and discomfort.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

**Prolonged/Repeated Exposure Effects**

Skin: No known applicable information.

Inhalation: No known applicable information.

Oral: No known applicable information.

**Signs and Symptoms of Overexposure**

No known applicable information.

**Medical Conditions Aggravated by Exposure**

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This is not a hazardous material as defined in the OSHA Hazard Communication Standard.

## 4. FIRST AID MEASURES

| | |
|---|---|
| Eye: | If irritation occurs, flush eye(s) with lukewarm gently flowing water for 5 minutes. Obtain medical attention. |
| Skin: | No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice. |
| Inhalation: | If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice. |
| Oral: | If irritation or discomfort occur, obtain medical advice. |
| Notes to Physician: | Treat according to person's condition and specifics of exposure. |

## 5. FIRE FIGHTING MEASURES

| | |
|---|---|
| Flash Point: | > 214 °F / > 101.1 °C (Closed Cup) |
| Autoignition Temperature: | Not determined. |
| Flammability Limits in Air: | Not determined. |
| Extinguishing Media: | On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers. |
| Fire Fighting Measures: | Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool. |
| Unusual Fire Hazards: | None. |

## 6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| Containment/Clean up: | Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements. |

Note: See Section 8 for Personal Protective Equipment for Spills. Call (989) 496-5900, if additional information is required.

## 7. HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact.

Use reasonable care and store away from oxidizing materials. This material in its finely divided form presents an explosion hazard. Follow NFPA 654 (for chemical dusts) or 484 (for metal dusts) as appropriate for managing dust hazards to minimize secondary explosion potential.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Component Exposure Limits**

There are no components with workplace exposure limits.

**Engineering Controls**

| | |
|---|---|
| Local Ventilation: | None should be needed. |
| General Ventilation: | Recommended. |

**Personal Protective Equipment for Routine Handling**

| | |
|---|---|
| Eyes: | Use proper protection - safety glasses as a minimum. |
| Skin: | Washing at mealtime and end of shift is adequate. |
| Suitable Gloves: | Handle in accordance with good industrial hygiene and safety practices. |
| Inhalation: | No respiratory protection should be needed. |
| Suitable Respirator: | None should be needed. |

**Personal Protective Equipment for Spills**

| | |
|---|---|
| Eyes: | Use proper protection - safety glasses as a minimum. |
| Skin: | Washing at mealtime and end of shift is adequate. |
| Inhalation/Suitable Respirator: | No respiratory protection should be needed. |
| Precautionary Measures: | Avoid eye contact. Use reasonable care. |

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| Physical Form: | Grease |
| Color: | Translucent white |
| Odor: | Odorless |
| Specific Gravity @ 25°C: | 1.1 |
| Viscosity: | Not determined. |
| Freezing/Melting Point: | Not determined. |
| Boiling Point: | Not determined. |
| Vapor Pressure @ 25°C: | Not determined. |
| Vapor Density: | Not determined. |
| Solubility in Water: | Not determined. |
| pH: | Not determined. |
| Volatile Content: | Not determined. |
| Flash Point: | > 214 °F / > 101.1 °C (Closed Cup) |
| Autoignition Temperature: | Not determined. |
| Flammability Limits in Air: | Not determined. |

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| Chemical Stability: | Stable. |
| Hazardous Polymerization: | Hazardous polymerization will not occur. |
| Conditions to Avoid: | None. |
| Materials to Avoid: | Oxidizing material can cause a reaction. |

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde.

## 11. TOXICOLOGICAL INFORMATION

**Special Hazard Information on Components**

No known applicable information.

## 12. ECOLOGICAL INFORMATION

**Environmental Fate and Distribution**

Complete information is not yet available.

**Environmental Effects**

Complete information is not yet available.

**Fate and Effects in Waste Water Treatment Plants**

Complete information is not yet available.

Ecotoxicity Classification Criteria

| Hazard Parameters (LC50 or EC50) | High | Medium | Low |
|---|---|---|---|
| Acute Aquatic Toxicity (mg/L) | <=1 | >1 and <=100 | >100 |
| Acute Terrestrial Toxicity | <=100 | >100 and <= 2000 | >2000 |

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

## 13. DISPOSAL CONSIDERATIONS

**RCRA Hazard Class (40 CFR 261)**

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal. Call (989) 496-6315, if additional information is required.

## 14. TRANSPORT INFORMATION

**DOT Road Shipment Information (49 CFR 172.101)**

Not subject to DOT.

**Ocean Shipment (IMDG)**

Not subject to IMDG code.

**Air Shipment (IATA)**

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

## 15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

**EPA SARA Title III Chemical Listings**

**Section 302 Extremely Hazardous Substances (40 CFR 355):**
None.

**Section 304 CERCLA Hazardous Substances (40 CFR 302):**
None.

**Section 311/312 Hazard Class (40 CFR 370):**

| | |
|---|---|
| Acute: | No |
| Chronic: | No |
| Fire: | No |
| Pressure: | No |
| Reactive: | No |

**Section 313 Toxic Chemicals (40 CFR 372):**
None present or none present in regulated quantities.

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

**Supplemental State Compliance Information**

**California**

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

**New Jersey**

| CAS Number | Wt % | Component Name |
|---|---|---|
| 63148-62-9 | 70.0 - 90.0 | Polydimethylsiloxane |
| 7631-86-9 | 7.0 - 13.0 | Silicon dioxide |
| NJ TSRN 14962700-847 2P | 5.0 - 10.0 | Silicone Metalloid Complex |

**Pennsylvania**

| CAS Number | Wt % | Component Name |
|---|---|---|
| 63148-62-9 | 70.0 - 90.0 | Polydimethylsiloxane |
| 7631-86-9 | 7.0 - 13.0 | Silicon dioxide |
| Trade Secret | 5.0 - 10.0 | Silicone Metalloid Complex |

## 16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

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