# Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS# 128446-60-6) GreenScreen® for Safer Chemicals (GreenScreen®) Assessment

**Prepared for:**

**Washington State Department of Ecology**

**Prepared by:**

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**October 16, 2014**

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# GreenScreen® Executive Summary for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS #128446-60-6)

Silsesquioxane compounds have been used in transition metal catalyst systems. Limited information is available for silsesquioxanes, 3-amino Me, ethoxy-terminated. However, it is a component of numerous silicone sealants.

Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a GreenScreen® Benchmark Score of U ("Unspecified due to Data Gaps"). It has High Group II Human Toxicity (skin irritation (IrS) and eye irritation (IrE)) and Moderate flammability (F). This corresponds to GreenScreen® benchmark classifications 3c and 3d in CPA 2011. Data gaps (DG) exist for carcinogenicity (C), mutagenicity (M), reproductive toxicity (R), developmental toxicity (D), endocrine activity (E), acute toxicity (AT), systemic toxicity (single dose (STs) and repeated dose (STr*)), neurotoxicity (single dose (Ns) and repeated dose (Nr*)), skin sensitization (SnS*), respiratory sensitization (SnR*), acute aquatic toxicity (AA), chronic aquatic toxicity (CA), persistence (P), bioaccumulation (B), and reactivity (Rx). As outlined in CPA (2013) Section 12.2 (Step 8 – Conduct a Data Gap Analysis to assign a final Benchmark score), silsesquioxanes, 3-amino Me, ethoxy-terminated does not meet requirements for a GreenScreen® Benchmark Score of 2 or 3. In a worst-case scenario, if silsesquioxanes, 3-amino Me, ethoxy-terminated were assigned any scores leading to GreenScreen® benchmark classifications 1a, 1b, 1c, 1d or 1e, it would be categorized as a Benchmark 1 Chemical.

**GreenScreen® Benchmark Score for Relevant Route of Exposure:**
As a standard approach for GreenScreen® evaluations, all exposure routes (oral, dermal and inhalation) were evaluated together, so the GreenScreen® Benchmark Score of U ("Unspecified due to Insufficient Data") is applicable for all routes of exposure.

**GreenScreen® Hazard Ratings for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated**

| Group I Human | | | | | Group II and II* Human | | | | | | | | | Ecotox | | Fate | | Physical | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C** | **M** | **R** | **D** | **E** | **AT** | **ST** | | **N** | | **SnS*** | **SnR*** | **IrS** | **IrE** | **AA** | **CA** | **P** | **B** | **Rx** | **F** |
| | | | | | | single | repeated* | single | repeated* | | | | | | | | | | |
| DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | *H* | *H* | DG | DG | DG | DG | DG | *M* |

Note: Hazard levels (Very High (vH), High (H), Moderate (M), Low (L), Very Low (vL)) in *italics* reflect estimated values, authoritative B lists, screening lists, weak analogues, and lower confidence. Hazard levels in **BOLD** font are used with good quality data, authoritative A lists, or strong analogues. Group II Human Health endpoints differ from Group II* Human Health endpoints in that they have four hazard scores (i.e., vH, H, M, and L) instead of three (i.e., H, M, and L), and are based on single exposures instead of repeated exposures. Please see Appendix A for a glossary of hazard acronyms.

# GreenScreen® Assessment for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS #128446-60-6)

**Method Version: GreenScreen® Version 1.2[1]**
**Assessment Type[2]: Certified**

**Chemical Name:** Silsesquioxanes, 3-Amino Me, Ethoxy-terminated

**CAS Number:** 128446-60-6

**GreenScreen® Assessment Prepared By:**
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Title: Toxicologist
Organization: ToxServices LLC
Date: October 16, 2014

**Confirm application of the *de minimus* rule[3]:** N/A

**Chemical Structure(s):**
No structure was identified for silsesquioxanes, 3-amino Me, ethoxy-terminated.

**Also called:** No synonyms were identified for silsesquioxanes, 3-amino Me, ethoxy-terminated.

**Chemical Structure(s) of Chemical Surrogates Used in the GreenScreen®:**
No chemical surrogates were identified for this GreenScreen®. As no structure was identified for silsesquioxanes, 3-amino Me, ethoxy-terminated, structural surrogates could not be identified using the ChemIDplus structural similarity search or the U.S. EPA's Analog Identification Methodology software (ChemIDplus 2014). ToxServices also considered other silsesquioxanes as potential surrogates but none were appropriate. Additionally, without a structure, aquatic toxicity and environmental endpoints cannot be modeled.

**Identify Applications/Functional Uses:**
1. Catalyst (Sigma-Aldrich Undated)
2. Silicone sealant (Bostik 2011; Otto Chemie 2014; Sika 2011)

**GreenScreen® Summary Rating for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated[4]:**
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a GreenScreen® Benchmark Score of U ("Unspecified due to Data Gaps"). It has High Group II Human Toxicity (skin irritation (IrS) and eye irritation (IrE)) and Moderate flammability (F). This corresponds to GreenScreen® benchmark

[1] Use GreenScreen® Assessment Procedure (Guidance) V1.2

[2] GreenScreen® reports are either "UNACCREDITED" (by unaccredited person), "AUTHORIZED" (by Authorized GreenScreen® Practitioner), "CERTIFIED" (by Licensed GreenScreen® Profiler or equivalent) or "CERTIFIED WITH VERIFICATION" (Certified or Authorized assessment that has passed GreenScreen® Verification Program)

[3] Every chemical in a material or formulation should be assessed if it is:
1. intentionally added and/or
2. present at greater than or equal to 100 ppm

[4] For inorganic chemicals with low human and ecotoxicity across all hazard endpoints and low bioaccumulation potential, persistence alone will not be deemed problematic. Inorganic chemicals that are only persistent will be evaluated under the criteria for Benchmark 4.

classifications 3c and 3d in CPA 2011. Data gaps (DG) exist for carcinogenicity (C), mutagenicity (M), reproductive toxicity (R), developmental toxicity (D), endocrine activity (E), acute toxicity (AT), systemic toxicity (single dose (STs) and repeated dose (STr*)), neurotoxicity (single dose (Ns) and repeated dose (Nr*)), skin sensitization (SnS*), respiratory sensitization (SnR*), acute aquatic toxicity (AA), chronic aquatic toxicity (CA), persistence (P), bioaccumulation (B), and reactivity (Rx). As outlined in CPA (2013) Section 12.2 (Step 8 – Conduct a Data Gap Analysis to assign a final Benchmark score), silsesquioxanes, 3-amino Me, ethoxy-terminated does not meet requirements for a GreenScreen® Benchmark Score of 2 or 3. In a worst-case scenario, if silsesquioxanes, 3-amino Me, ethoxy-terminated were assigned any scores leading to GreenScreen® benchmark classifications 1a, 1b, 1c, 1d or 1e, it would be categorized as a Benchmark 1 Chemical.

**Figure 1: GreenScreen® Hazard Ratings for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated**

| Group I Human | | | | | Group II and II* Human | | | | | | | | | Ecotox | | Fate | | Physical | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C** | **M** | **R** | **D** | **E** | **AT** | **ST** | | **N** | | **SnS*** | **SnR*** | **IrS** | **IrE** | **AA** | **CA** | **P** | **B** | **Rx** | **F** |
| | | | | | | single | repeated* | single | repeated* | | | | | | | | | | |
| DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | *H* | *H* | DG | DG | DG | DG | DG | *M* |

Note: Hazard levels (Very High (vH), High (H), Moderate (M), Low (L), Very Low (vL)) in *italics* reflect estimated (modeled) values, authoritative B lists, screening lists, weak analogues and lower confidence. Hazard levels in **BOLD** font are used with good quality data, authoritative A lists, or strong analogues. Group II Human Health endpoints differ from Group II* Human Health endpoints in that they have four hazard scores (i.e. vH, H, M, and L) instead of three (i.e. H, M, and L), and are based on single exposures instead of repeated exposures. Please see Appendix A for a glossary of hazard acronyms.

## Transformation Products and Ratings:

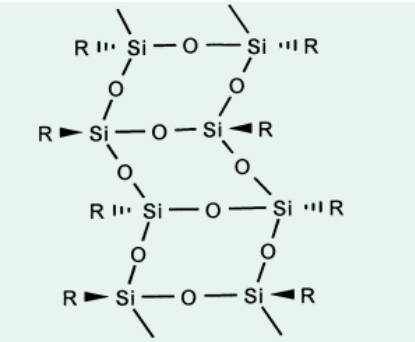
**Identify feasible and relevant fate and transformation products** (i.e., dissociation products, transformation products, valence states) **and/or moieties of concern**[5]

No transformation products were identified for silsesquioxanes, 3-amino Me, ethoxy-terminated.

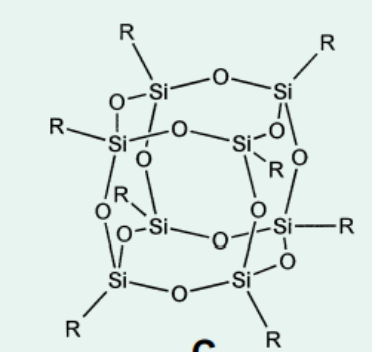
## Introduction

Silsesquioxane compounds have an empirical formula $RSiO_{1.5}$ (Sigma-Aldrich Undated), where R is hydrogen or any alkyl, alkylene, aryl, arylene, or organo-functional derivatives of alkyl, alkylene, aryl, or arylene groups (Baney et al. 1995). Silsesquioxane compounds can take on several structures, with the most common being a ladder-type structure and a cubic structure which is commonly referred to as a $T_8$ cube, as shown below.

[5] A moiety is a discrete chemical entity that is a constituent part or component of a substance. A moiety of concern is often the parent substance itself for organic compounds. For inorganic compounds, the moiety of concern is typically a dissociated component of the substance or a transformation product.



Ladder-Type



$T_8$ cube (Sigma-Aldrich Undated)

Silsesquioxane compounds have been used in transition metal catalyst systems (Sigma-Aldrich Undated). Limited information is available for silsesquioxanes, 3-amino Me, ethoxy-terminated. However, it is a component of numerous silicone sealants (Bostik 2011; Otto Chemie 2014; Sika 2011).

ToxServices assessed silsesquioxanes, 3-amino Me, ethoxy-terminated against GreenScreen® Version 1.2 (CPA 2013) following procedures outlined in ToxServices' SOP 1.69 (GreenScreen® Hazard Assessment) (ToxServices 2013).

## GreenScreen® List Translator Screening Results

The GreenScreen® List Translator identifies specific authoritative or screening lists that should be searched to identify GreenScreen® benchmark 1 chemicals (CPA 2012b). Pharos (Pharos 2014) is an online list-searching tool that is used to screen chemicals against the List Translator electronically. It checks all of the lists in the List Translator with the exception of the U.S. Department of Transportation (U.S. DOT) lists (U.S. DOT 2008a,b) and these should be checked separately in conjunction with running the Pharos query. The output indicates benchmark or possible benchmark scores for each human health and environmental endpoint. The output for silsesquioxanes, 3-amino Me, ethoxy-terminated can be found in Appendix C and a summary of the results can be found below:

Silsesquioxanes, 3-amino Me, ethoxy-terminated has no hazard listings on Pharos.

## PhysicoChemical Properties of Silsesquioxanes, 3-Amino Me, Ethoxy-terminated

No physicochemical property information was identified for silsesquioxanes, 3-amino Me, ethoxy-terminated.

**Table 1: Physical and Chemical Properties of Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS #128446-60-6)**

| Property | Value | Reference |
|---|---|---|
| Molecular formula | Unspecified | ChemIDplus 2014 |
| SMILES Notation | Not identified | |
| Molecular weight | Not identified | |
| Physical state | Not identified | |
| Appearance | Not identified | |
| Melting point | Not identified | |
| Vapor pressure | Not identified | |
| Water solubility | Not identified | |

| Table 1: Physical and Chemical Properties of Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS #128446-60-6) | | |
|---|---|---|
| **Property** | **Value** | **Reference** |
| Dissociation constant | Not identified | |
| Density/specific gravity | Not identified | |
| Partition coefficient | Not identified | |

**Hazard Classification Summary Section:**

**Group I Human Health Effects (Group I Human)**

**Carcinogenicity (C) Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for carcinogenicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Mutagenicity/Genotoxicity (M) Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for mutagenicity/genotoxicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Reproductive Toxicity (R) Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for reproductive toxicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Developmental Toxicity incl. Developmental Neurotoxicity (D) Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for developmental toxicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Endocrine Activity (E) Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for endocrine disruption based on a lack of data for this endpoint.

- Authoritative and Screening Lists

  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- Not listed as a potential endocrine disruptor on the EU Priority List of Suspected Endocrine Disruptors.
- Not listed as a potential endocrine disruptor on the OSPAR List of Chemicals of Possible Concern.
- No data were identified.

**Group II and II* Human Health Effects (Group II and II* Human)**

***Note: Group II and Group II* endpoints are distinguished in the v 1.2 Benchmark system. For Systemic Toxicity and Neurotoxicity, Group II and II* are considered sub-endpoints and test data for single or repeated exposures may be used. If data exist for single OR repeated exposures, then the endpoint is not considered a data gap. If data are available for both single and repeated exposures, then the more conservative value is used.***

**Acute Mammalian Toxicity (AT) Group II Score (vH, H, M, or L):** DG

Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for acute toxicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Systemic Toxicity/Organ Effects incl. Immunotoxicity (ST)**

***Group II Score (single dose)* (vH, H, M, or L):** DG

Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for systemic toxicity (single dose) based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

***Group II* Score (repeated dose)* (H, M, or L):** DG

Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for systemic toxicity (repeated dose) based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Neurotoxicity (N)**

***Group II Score (single dose)* (vH, H, M, or L):** DG

Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for neurotoxicity (single dose) based on a lack of data for this endpoint

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- Not classified as a developmental neurotoxicant (Grandjean and Landrigan 2006, 2014).
- No data were identified.

***Group II* Score (repeated dose)*** **(H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for neurotoxicity (repeated dose) based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- Not classified as a developmental neurotoxicant (Grandjean and Landrigan 2006, 2014).
- No data were identified.

**Skin Sensitization (SnS) Group II* Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for skin sensitization based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Respiratory Sensitization (SnR) Group II* Score (H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for respiratory sensitization based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Skin Irritation/Corrosivity (IrS) Group II Score (vH, H, M, or L):** *H*
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of High for skin irritation/corrosivity based on an unofficial classification to an authoritative list. Confidence in this endpoint was reduced due to the use of an unofficial classification. GreenScreen® criteria classify chemicals as a High hazard for skin irritation/corrosivity when associated with the authoritative H315 list (CPA 2012a).

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- ECHA 2014
  - Industry registrants classified silsesquioxanes, 3-amino Me, ethoxy-terminated as H315: Causes skin irritation.

**Eye Irritation/Corrosivity (IrE) Group II Score (vH, H, M, or L):** *H*
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of High for eye irritation/corrosivity based on an unofficial classification to an authoritative list. GreenScreen® criteria classify chemicals as a High hazard for eye irritation/corrosivity when associated with the authoritative H319 list (CPA 2012a).

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- ECHA 2014
  - Industry registrants classified silsesquioxanes, 3-amino Me, ethoxy-terminated as H319:

Causes serious eye irritation.

**Ecotoxicity (Ecotox)**

**Acute Aquatic Toxicity (AA) Score (vH, H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for acute aquatic toxicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Chronic Aquatic Toxicity (CA) Score (vH, H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for chronic aquatic toxicity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Environmental Fate (Fate)**

**Persistence (P) Score (vH, H, M, L, or vL):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for persistence based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Bioaccumulation (B) Score (vH, H, M, L, or vL):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for bioaccumulation based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Physical Hazards (Physical)**

**Reactivity (Rx) Score (vH, H, M, or L):** DG
Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Data Gap for reactivity based on a lack of data for this endpoint.

- Authoritative and Screening Lists
  - *Authoritative:* not on any authoritative lists
  - *Screening:* not on any screening lists
- No data were identified.

**Flammability (F) Score (vH, H, M, or L):** *M*

Silsesquioxanes, 3-amino Me, ethoxy-terminated was assigned a score of Moderate for flammability based on an unofficial classification to an authoritative list. Confidence in this endpoint was reduced due to the use of an unofficial classification. GreenScreen® criteria classify chemicals as a Moderate hazard for flammability when associated with the authoritative H226 list (CPA 2012a).

- Authoritative and Screening Lists
    - *Authoritative:* not on any authoritative lists
    - *Screening:* not on any screening lists
- ECHA 2014
    - Industry registrants classified silsesquioxanes, 3-amino Me, ethoxy-terminated as H226: Flammable liquid and vapor.

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## APPENDIX A: Hazard Benchmark Acronyms
**(in alphabetical order)**

**(AA) Acute Aquatic Toxicity**

**(AT) Acute Mammalian Toxicity**

**(B) Bioaccumulation**

**(C) Carcinogenicity**

**(CA) Chronic Aquatic Toxicity**

**(D) Developmental Toxicity**

**(E) Endocrine Activity**

**(F) Flammability**

**(IrE) Eye Irritation/Corrosivity**

**(IrS) Skin Irritation/Corrosivity**

**(M) Mutagenicity and Genotoxicity**

**(N) Neurotoxicity**

**(P) Persistence**

**(R) Reproductive Toxicity**

**(Rx) Reactivity**

**(SnS) Sensitization- Skin**

**(SnR) Sensitization- Respiratory**

**(ST) Systemic/Organ Toxicity**

# APPENDIX B: Results of Automated GreenScreen® Score Calculation for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS #1128446-60-6)

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## GreenScreen® Score Inspector

**Table 1: Hazard Table**

| | Group I Human | | | | | Group II and II* Human | | | | | | | | | Ecotox | | Fate | | Physical | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Carcinogenicity | Mutagenicity/Genotoxicity | Reproductive Toxicity | Developmental Toxicity | Endocrine Activity | Acute Toxicity | Systemic Toxicity | | Neurotoxicity | | Skin Sensitization* | Respiratory Sensitization* | Skin Irritation | Eye Irritation | Acute Aquatic Toxicity | Chronic Aquatic Toxicity | Persistence | Bioaccumulation | Reactivity | Flammability |
| | | | | | | | S | R * | S | R * | * | * | | | | | | | | |
| Table 2: Chemical Details | | | | | | | | | | | | | | | | | | | | |
| Inorganic Chemical? | Chemical Name | CAS# | C | M | R | D | E | AT | STs | STr | Ns | Nr | SNS* | SNR* | IrS | IrE | AA | CA | P | B | Rx | F |
| No | Silsesquioxanes, 3-Amino Me, Ethoxy-Terminated | 1128446-60-6 | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | DG | *H* | *H* | DG | DG | DG | DG | DG | *M* |

**Table 3: Hazard Summary Table**

| Benchmark | a | b | c | d | e | f | g |
|---|---|---|---|---|---|---|---|
| 1 | No | No | No | No | No | | |
| 2 | No | No | No | No | No | No | No |
| 3 | No | No | Yes | Yes | | | |
| 4 | STOP | | | | | | |

**Table 4**

| Chemical Name | Preliminary GreenScreen® Benchmark Score |
|---|---|
| Silsesquioxanes, 3-Amino Me, Ethoxy-Terminated | 3 |

**Note:** Chemical has not undergone a data gap assessment. Not a Final GreenScreen™ Score

**Table 6**

| Chemical Name | Final GreenScreen® Benchmark Score |
|---|---|
| Silsesquioxanes, 3-Amino Me, Ethoxy-Terminated | U |

After Data gap Assessment
**Note:** No Data gap Assessment Done if Preliminary GS Benchmark Score is 1.

**Table 5: Data Gap Assessment Table**

| Datagap Criteria | a | b | c | d | e | f | g | h | i | j | bm4 | End Result |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | No | No | No | No | No | No | No | No | No | No | | U |
| 4 | | | | | | | | | | | | |

## APPENDIX C: Pharos Output for Silsesquioxanes, 3-Amino Me, Ethoxy-terminated (CAS #128446-60-6)

Search Results for '128446-60-6'

Companies (0) | Building Products (0) | Chemicals, Compounds, and Biobased Materials (0) | Signal Articles (0) | Certifications (0)

**Companies**

*There were no companies found that match the search term **128446-60-6**.*

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**Building Products**

*There were no products found that match the search term **128446-60-6**.*

Back to top

**Chemicals, Compounds, and Biobased Materials**

*There were no chemicals, compounds, or biobased materials found that match the search term **128446-60-6**.*

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**Signal Articles**

*There were no Signal articles found that match the search term **128446-60-6**.*

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**Certifications**

*There were no certifications found that match the search term **128446-60-6**.*

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**Sources to Check for GreenScreen® Hazard Assessment**

Note: For a GreenScreen® Hazard Assessment, data queries should be initially limited to the following references. If data gaps exist after these references have been checked, additional references may be utilized.

*U.S. EPA High Production Volume Information System (HPVIS):*
*http://www.epa.gov/hpvis/index.html*

*UNEP OECD Screening Information Datasets (SIDS):*
*http://www.chem.unep.ch/irptc/sids/OECDSIDS/sidspub.html*

*OECD Existing Chemicals Database: http://webnet.oecd.org/hpv/ui/SponsoredChemicals.aspx*

*European Chemical Substances Information System IUCLID Chemical Data Sheets:*
*http://esis.jrc.ec.europa.eu/index.php?PGM=dat*

*National Toxicology Program: http://ntp.niehs.nih.gov/*

*International Agency for the Research on Cancer:*
*http://monographs.iarc.fr/ENG/Classification/index.php*

*Human and Environmental Risk Assessment (HERA) on ingredients of household cleaning products:*
*http://www.heraproject.com/RiskAssessment.cfm*

*European Chemicals Agency (ECHA) REACH Dossiers: http://echa.europa.eu/*

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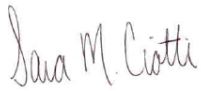
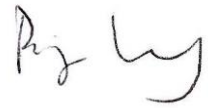
**Silsesquioxanes, 3-Amino Me, Ethoxy-terminated GreenScreen® Evaluation Prepared by:**



Sara M. Ciotti, Ph.D.
Toxicologist
ToxServices LLC

**Silsesquioxanes, 3-Amino Me, Ethoxy-terminated GreenScreen® Evaluation QC'd by:**



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