

GAROSIL P (PENTAMER D5) - GAROSILP



FICHE DE DONNÉES DE SÉCURITÉ
 (Règlement REACH (CE) n° 1907/2006 - n° 2015/830)

RUBRIQUE 1 : IDENTIFICATION DE LA SUBSTANCE/DU MÉLANGE ET DE LA SOCIÉTÉ/L'ENTREPRISE

1.1. Identificateur de produit

Nom du produit : GAROSIL P (PENTAMER D5)

Code du produit : GAROSILP

N° d'enregistrement REACH : 01-2119511367-43

1.2. Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées

Utilisation dans la fabrication électronique, dans l'industrie textile. Formulation de produits de soins personnels et de produits de soins ménagers. Utilisation professionnelle dans les produits de lavage et de nettoyage, dans les polis et les cires, dans le nettoyage à sec et comme réactif de laboratoire.

1.3. Renseignements concernant le fournisseur de la fiche de données de sécurité

Raison Sociale : GACHES CHIMIE SPECIALITES.

Adresse : Z.I. Thibaud 8 rue Labouche.31084.TOULOUSE.FRANCE.

Téléphone : 05.61.44.67.67. Fax : 05.61.40.68.33.

fds@gaches.com

http://www.gaches.com

Nos FDS sont disponibles sur notre site internet / SDS available on our website : www.gaches.com

1.4. Numéro d'appel d'urgence : +33 (0)1 45 42 59 59.

Société/Organisme : INRS / ORFILA http://www.centres-antipoison.net.

RUBRIQUE 2 : IDENTIFICATION DES DANGERS

2.1. Classification de la substance ou du mélange

Conformément au règlement (CE) n° 1272/2008 et ses adaptations.

Cette substance ne présente pas de danger physique. Voir les préconisations concernant les autres produits présents dans le local.

Cette substance ne présente pas de danger pour la santé hormis d'éventuelles valeurs limites d'exposition professionnelle (voir les rubriques 3 et 8).

Cette substance ne présente pas de danger pour l'environnement. Aucune atteinte à l'environnement n'est connue ou prévisible dans les conditions normales d'utilisation.

2.2. Éléments d'étiquetage

Conformément au règlement (CE) n° 1272/2008 et ses adaptations.

Aucun élément d'étiquetage n'est requis pour cette substance.

Autres informations :

2.3. Autres dangers

La substance ne répond pas aux critères applicables aux substances PBT ou vPvB, conformément à l'annexe XIII du règlement REACH (CE) n° 1907/2006.

RUBRIQUE 3 : COMPOSITION/INFORMATIONS SUR LES COMPOSANTS

3.1. Substances

Composition :

Pureté : 50 - <100%

Identification	(CE) 1272/2008	Nota	%
CAS: 541-02-6 EC: 208-764-9 REACH: 01-2119511367-43 DECAMETHYLCYCLOPENTASILOXANE		[6]	100%

Informations sur les composants :

Contient :

[6] Substances extrêmement préoccupantes (SVHC).

- dodécaméthylcyclohexasiloxane, n°CE 208-762-8, n°CAS 540-97-6, n° d'enregistrement REACH 01-2119517435-42 : 0,1 - <1%

GAROSIL P (PENTAMER D5) - GAROSILP

RUBRIQUE 4 : PREMIERS SECOURS

D'une manière générale, en cas de doute ou si des symptômes persistent, toujours faire appel à un médecin.

NE JAMAIS rien faire ingérer à une personne inconsciente.

Ne pas laisser la victime sans surveillance.

Protection des sauveteurs : Aucune initiative ne doit être prise qui implique un risque individuel ou en l'absence de formation appropriée.

4.1. Description des premiers secours

En cas d'inhalation :

Amener la personne dans un endroit aéré, hors de la zone d'exposition.

En cas de contact avec les yeux :

Laver abondamment avec de l'eau douce et propre durant 15 minutes en maintenant les paupières écartées.

En cas de contact avec la peau :

Enlever les vêtements et chaussures souillés. Laver soigneusement la peau avec de l'eau et du savon, puis bien rincer.

En cas d'ingestion :

Consulter un médecin en lui montrant l'étiquette.

Ne pas faire vomir.

Si la personne est consciente : rincer abondamment la bouche et les lèvres à l'eau.

4.2. Principaux symptômes et effets, aigus et différés

Aucune donnée n'est disponible.

4.3. Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires

Aucune donnée n'est disponible.

RUBRIQUE 5 : MESURES DE LUTTE CONTRE L'INCENDIE

Non inflammable.

5.1. Moyens d'extinction

Le produit lui-même n'est pas combustible. Définir les moyens d'extinction en fonction des conditions locales et de l'environnement voisin.

Moyens d'extinction appropriés

En cas d'incendie, utiliser :

- mousse
- dioxyde de carbone (CO₂)
- poudre sèche

Moyens d'extinction inappropriés

En cas d'incendie, ne pas utiliser :

- jet d'eau

Un jet d'eau à grand débit risque de propager le feu.

5.2. Dangers particuliers résultant de la substance ou du mélange

Un incendie produira souvent une épaisse fumée noire. L'exposition aux produits de décomposition peut comporter des risques pour la santé.

Ne pas respirer les fumées.

En cas d'incendie, peut se former :

- monoxyde de carbone (CO)
- dioxyde de carbone (CO₂)
- silice amorphe

L'augmentation de la température résultant d'un incendie ou d'une exposition à des températures élevées peut provoquer une décomposition du produit ou une vaporisation, donc l'augmentation de la pression dans le contenant et mener à une rupture violente de l'emballage (explosion).

5.3. Conseils aux pompiers

En raison de la toxicité des gaz émis lors de la décomposition thermique des produits, les intervenants seront équipés d'appareils de protection respiratoire autonomes isolants.

L'élévation de température peut provoquer une vaporisation ou une décomposition du produit, donc une augmentation de pression qui peut conduire à l'explosion des emballages. Refroidir par pulvérisation d'eau les récipients/contenants à proximité exposés au feu.

Veiller à ce que les effluents d'extinction d'incendie ne se déversent pas dans les systèmes d'évacuation d'eau, les égouts ou dans un cours d'eau.

Si l'opération peut se faire sans risques, écarter de la zone de danger immédiat (éloigner du feu) les contenants exposés au feu.

GAROSIL P (PENTAMER D5) - GAROSILP

RUBRIQUE 6 : MESURES À PRENDRE EN CAS DE DISPERSION ACCIDENTELLE

6.1. Précautions individuelles, équipement de protection et procédures d'urgence

Se référer aux mesures de protection énumérées dans les rubriques 7 et 8.

Assurer une ventilation adéquate.

Ne pas toucher ni marcher dans le produit déversé. Eviter tout contact avec le produit déversé.

Retirer immédiatement tout vêtement contaminé.

Isoler la zone affectée. Eloigner le personnel non nécessaire et non équipé de protection. Rester/circuler en amont du vent par rapport au déversement. Utiliser un équipement de protection approprié.

Nettoyer rapidement tout déversement pour éviter d'endommager les matériaux/autres emballages à proximité, et toute propagation de contamination.

Si possible, placer l'emballage avec la fuite vers le haut, pour limiter toute perte supplémentaire de produit.

Pour les non-secouristes

Aucune initiative ne doit être prise qui implique un risque individuel ou en l'absence de formation appropriée.

Pour les secouristes

Les intervenants seront équipés d'équipements de protections individuelles appropriés (Se référer à la rubrique 8).

6.2. Précautions pour la protection de l'environnement

Contenir et recueillir les fuites avec des matériaux absorbants non combustibles, par exemple : sable, terre, vermiculite, terre de diatomées dans des fûts en vue de l'élimination des déchets.

Empêcher toute pénétration dans les égouts ou cours d'eau.

Le produit ne doit pas contaminer les eaux souterraines.

Si le produit contamine des nappes d'eau, rivières ou égouts, alerter les autorités compétentes selon les procédures réglementaires.

Placer les déchets récupérés dans des contenants adaptés, fermés et correctement étiquetés, en vue de leur élimination selon les réglementations en vigueur (voir rubrique 13).

6.3. Méthodes et matériel de confinement et de nettoyage

Arrêter l'écoulement, si l'intervention est possible sans risque.

Recueillir par pompage ou confiner le produit à l'aide d'une matière absorbante (sable, terre, vermiculite, kieselguhr, liant universel, sciure). Placer dans des contenants adaptés, fermés et correctement étiquetés. Stocker et éliminer conformément à la réglementation.

Les matériaux absorbants contaminés peuvent présenter les mêmes risques que le produit répandu. Nota : Voir rubrique 1 pour le contact en cas d'urgence et voir rubrique 13 pour l'élimination des déchets.

Pour nettoyer le sol ou les objets, souillés par ce produit, utiliser un solvant approprié (voir section 9).

Laver la zone contaminée à grande eau.

Incinérer dans une chambre de combustion appropriée.

6.4. Référence à d'autres rubriques

Numéro d'appel d'urgence en rubrique 1.4.

Les informations relatives aux contrôles de l'exposition/à la protection individuelle se trouvent en rubrique 8, et les mesures de protection pour la manipulation en rubrique 7.

Pour les conseils relatifs à l'élimination du produit déversé accidentellement, voir la rubrique 13.

RUBRIQUE 7 : MANIPULATION ET STOCKAGE

Les prescriptions relatives aux locaux de stockage sont applicables aux ateliers où est manipulée la substance.

7.1. Précautions à prendre pour une manipulation sans danger

Se laver les mains après chaque utilisation.

Assurer une ventilation adéquate, surtout dans les endroits clos.

Eviter la formation de vapeurs, brouillards ou aérosols.

Eviter de respirer les vapeurs et éviter le contact avec ce produit.

Eviter les éclaboussures et projections durant les manipulations.

Eviter le contact avec la peau, les yeux et les vêtements.

Ne pas s'essuyer les mains avec des chiffons/tissus/... souillés.

Le poste de travail et les méthodes seront organisés de manière à prévenir ou à réduire au minimum le contact direct avec le produit.

Prévoir poste d'eau et/ou douche de sécurité et/ou fontaine oculaire à proximité des lieux d'emploi. S'assurer du bon fonctionnement.

Eviter de manipuler au dessus du point éclair, sinon formation possible de mélanges vapeur-air inflammables/explosifs.

Equipements et procédures recommandés :

Pour la protection individuelle, voir la rubrique 8.

Observer les précautions indiquées sur l'étiquette ainsi que les réglementations de la protection du travail.

Les emballages entamés doivent être refermés soigneusement et conservés en position verticale.

Conserver à l'écart des aliments et boissons y compris ceux pour animaux.

GAROSIL P (PENTAMER D5) - GAROSILP

Equipements et procédures interdits :

Il est interdit de fumer, manger et boire dans les locaux où la substance est utilisée.

7.2. Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités

La zone de stockage doit être sur rétention.

Ne pas stocker dans des contenants non étiquetés.

Stockage

Conserver dans un endroit frais et sec équipé d'une ventilation appropriée.

Le sol des locaux sera imperméable et aménagé de manière à permettre la récupération ou la neutralisation du produit qui pourrait se répandre en cas de fuite.

Conserver à l'écart des produits incompatibles (cf rubrique 10).

Emballage

Toujours conserver dans des emballages d'un matériau identique à celui d'origine.

Matériaux de conditionnement appropriés :

- acier revêtu de résine époxy

Conserver de préférence dans l'emballage d'origine, dans le cas contraire, utiliser des emballages appropriés (homologués) et reporter, s'il y a lieu, toutes les indications de l'étiquette réglementaire sur le nouvel emballage.

7.3. Utilisation(s) finale(s) particulière(s)

Aucune donnée n'est disponible.

RUBRIQUE 8 : CONTRÔLES DE L'EXPOSITION/PROTECTION INDIVIDUELLE

8.1. Paramètres de contrôle

Aucune donnée n'est disponible.

8.2. Contrôles de l'exposition

Les mesures de contrôle appropriées pour un lieu de travail dépendent de la façon dont le produit est utilisé et du potentiel d'exposition.

Si les équipements de protection collective (moyens techniques, modes opératoires) ne sont pas efficaces dans la prévention ou le contrôle de l'exposition, des équipements de protections individuels doivent être utilisés.

Contrôles techniques appropriés

Veiller à une ventilation adéquate, si possible, par aspiration aux postes de travail et par une extraction générale convenable.

Mesures de protection individuelle, telles que les équipements de protection individuelle

Pictogramme(s) d'obligation du port d'équipements de protection individuelle (EPI) :



Utiliser des équipements de protection individuelle propres et correctement entretenus.

Stocker les équipements de protection individuelle dans un endroit propre, à l'écart de la zone de travail.

Lors de l'utilisation, ne pas manger, boire ou fumer. Enlever et laver les vêtements contaminés avant réutilisation. Assurer une ventilation adéquate, surtout dans les endroits clos.

La sélection et l'utilisation des équipements de protection individuelle (EPI) doit respecter les normes et réglementations en vigueur. Il est recommandé de toujours demander conseil auprès des fournisseurs d'EPI.

L'évaluation du risque dans chaque phase de travail est indispensable pour définir précisément les moyens de protection à mettre en place.

Observer les bonnes pratiques d'hygiène : bien se laver les mains avant les pauses et en fin de période de travail, avant de manger, de fumer, ou d'aller aux toilettes.

- Protection des yeux / du visage

Eviter le contact avec les yeux.

Utiliser des protections oculaires conçues contre les projections de liquide.

S'il y a risque d'éclaboussures ou de projections, porter des lunettes de sécurité avec protections latérales.

- Protection des mains

Porter des gants de protection appropriés en cas de contact prolongé ou répété avec la peau.

Type de gants conseillés :

- Caoutchouc Nitrile (Copolymère butadiène-acrylonitrile (NBR))

- PVC (Polychlorure de vinyle)

L'adaptabilité et la durabilité d'un gant dépend de son usage, par exemple de la fréquence et de la durée de contact, la résistance chimique de la matière constitutive du gant, de son épaisseur, de la dextérité nécessaire. Il est recommandé de toujours demander conseil auprès des fournisseurs de gants.

- Protection du corps

GAROSIL P (PENTAMER D5) - GAROSILP

Le personnel portera un vêtement de travail régulièrement lavé.

Après contact avec le produit, toutes les parties du corps souillées devront être lavées.

Le choix d'équipements de protection du corps doit être fait en fonction du type d'opération réalisé et des risques d'exposition.

Appliquer les instructions de lavage et de conservation fournies par le fabricant pour garantir une protection invariable.

- Protection respiratoire

Si les mesures techniques et équipements de protection collective ne permettent pas de maintenir les concentrations de substances dans l'air à un niveau adéquat pour protéger la santé des travailleurs, le port d'un équipement individuel de protection respiratoire agréé s'avère nécessaire.

Pas de protection nécessaire dans les conditions normales d'utilisation avec une ventilation adéquate, sauf en cas de formation de brouillard ou d'aérosols.

En cas de formation de brouillards/d'aérosols, masque de protection contre les particules en suspension, de type P2.

RUBRIQUE 9 : PROPRIÉTÉS PHYSIQUES ET CHIMIQUES**9.1. Informations sur les propriétés physiques et chimiques essentielles****Informations générales**

Etat Physique :	Liquide Fluide.
Couleur :	Incolore
Odeur :	Inodore
Forme physique :	Légèrement visqueux

Informations importantes relatives à la santé, à la sécurité et à l'environnement

pH :	Non concerné.
Point d'ébullition :	211 °C.
Point d'éclair :	80.00 °C. Méthode de détermination du point d'éclair :
Coupelle fermée selon norme Afnor T 60103.	
Pression de vapeur (50°C) :	Non concerné.
Densité :	Env. 0,96 (20 °C)
Hydrosolubilité :	Insoluble. 0,017 g/l (23 °C)
Coefficient de partage n-octanol/eau :	8,02
Viscosité :	Env. 4 mm ² /s (25 °C)
Point/intervalle de fusion :	Non précisé.
Point/intervalle d'auto-inflammation :	372 °C.
Point/intervalle de décomposition :	Non précisé.
Point de congélation :	-38 °C
Pression de vapeur :	0,332 hPa (23°C)
Tension de vapeur :	12,8 (air=1)
Solubilité :	Solvants organiques usuels : miscible (en toutes proportions).
Propriétés d'explosivité :	Le produit n'est pas explosif
Propriétés comburantes :	N'est pas considéré comme comburant (évaluation par relation structure-activité).

9.2. Autres informations

Aucune donnée n'est disponible.

RUBRIQUE 10 : STABILITÉ ET RÉACTIVITÉ**10.1. Réactivité**

Se référer aux incompatibilités (10.5) et possibilités de réactions dangereuses (10.3).

10.2. Stabilité chimique

Cette substance est stable aux conditions de manipulation et de stockage recommandées dans la rubrique 7.

10.3. Possibilité de réactions dangereuses

Aucune donnée n'est disponible.

10.4. Conditions à éviter

Eviter :

- des flammes et surfaces chaudes
- forte température

GAROSIL P (PENTAMER D5) - GAROSILP**10.5. Matières incompatibles**

Tenir à l'écart de/des :

- matières comburantes

10.6. Produits de décomposition dangereux

La décomposition thermique peut dégager/former :

- monoxyde de carbone (CO)
- dioxyde de carbone (CO₂)
- silice amorphe

Une décomposition thermique ou la combustion peut libérer des oxydes de carbone et d'autres gaz ou vapeurs toxiques.

RUBRIQUE 11 : INFORMATIONS TOXICOLOGIQUES**11.1. Informations sur les effets toxicologiques**

Aucune donnée n'est disponible.

11.1.1. Substances**Toxicité aiguë :**

DECAMETHYLCYCLOPENTASILOXANE (CAS: 541-02-6)

Par voie orale : DL50 > 5000 mg/kg
Espèce : Rat

Par voie cutanée : DL50 > 2000 mg/kg
Espèce : Lapin

Par inhalation (Vapeurs) : CL50 = 8.67 mg/l
Espèce : Rat

Corrosion cutanée/irritation cutanée :

Non irritant (lapin).

Lésions oculaires graves/irritation oculaire :

Non irritant (lapin).

Sensibilisation respiratoire ou cutanée :

Non sensibilisant dermal.

Mutagénicité sur les cellules germinales :

In vitro : aberration chromosomique : aucun composant mutagène identifié. Bactéries : aucun composant mutagène identifié.

In vivo : aucun composant mutagène identifié.

Toxicité pour la reproduction :

Etude de fertilité sur 2 générations rat (inhalation) : NOAEL (parent) = 2 610 mg/kg, NOAEL (F1) = 2 610 mg/kg, NOAEL (F2) = 2 610 mg/kg.

Toxicité spécifique pour certains organes cibles - exposition répétée :

Dodécaméthylcyclohexasiloxane (CAS 540-97-6) :

NOAEL (terato, lapin) >= 1 000 mg/kg, NOAEL (mater, lapin) >= 1 000 mg/kg, méthode : OECD 414.

NOAEL (terato, rat) >= 1 000 mg/kg, NOAEL (mater, rat) >= 1 000 mg/kg, méthode : OECD 414.

RUBRIQUE 12 : INFORMATIONS ÉCOLOGIQUES**12.1. Toxicité****12.1.1. Substances**

DECAMETHYLCYCLOPENTASILOXANE (CAS: 541-02-6)

Toxicité pour les poissons : CL50 > 0.016 mg/l
Espèce : Oncorhynchus mykiss
Durée d'exposition : 96 h

NOEC >= 0.014 mg/l
Espèce : Oncorhynchus mykiss

Toxicité pour les crustacés : CE50 > 0.0029 mg/l
Espèce : Daphnia magna
Durée d'exposition : 48 h

GAROSIL P (PENTAMER D5) - GAROSILP

NOEC >= 0.015 mg/l
Espèce : Daphnia magna
Durée d'exposition : 21 jours

Toxicité pour les plantes aquatiques :

CE50 >= 0.012 mg/l
Espèce : Others
Durée d'exposition : 96 h

NOEC > 0.012 mg/l
Espèce : Others
Durée d'exposition : 96 h

12.2. Persistance et dégradabilité

12.2.1. Substances

Biodégradation : 0,14% (28 jours). Ce produit est facilement biodégradable.

DECAMETHYLCYCLOPENTASILOXANE (CAS: 541-02-6)

Biodégradation : Pas rapidement dégradable.

12.3. Potentiel de bioaccumulation

12.3.1. Substances

DECAMETHYLCYCLOPENTASILOXANE (CAS: 541-02-6)

Facteur de bioconcentration : BCF = 7060
Espèce : Pimephales promelas (Fish)

12.4. Mobilité dans le sol

Aucune donnée n'est disponible.

12.5. Résultats des évaluations PBT et vPvB

Aucune donnée n'est disponible.

12.6. Autres effets néfastes

Aucune donnée n'est disponible.

RUBRIQUE 13 : CONSIDÉRATIONS RELATIVES À L'ÉLIMINATION

Une gestion appropriée des déchets de la substance et/ou de son récipient doit être déterminée conformément aux dispositions de la directive 2008/98/CE.

13.1. Méthodes de traitement des déchets

Ne pas déverser dans les égouts ni dans les cours d'eau.

Le producteur des déchets doit déterminer les méthodes d'élimination adéquates, en fonction de la classification du déchet (selon la dangerosité du déchet généré et l'utilisation du produit).

Si possible récupérer ou recycler.

Déchets :

La gestion des déchets se fait sans mettre en danger la santé humaine et sans nuire à l'environnement, et notamment sans créer de risque pour l'eau, l'air, le sol, la faune ou la flore.

Recycler ou éliminer conformément aux législations en vigueur, de préférence par un collecteur ou une entreprise agréée.

Ne pas contaminer le sol ou l'eau avec des déchets, ne pas procéder à leur élimination dans l'environnement.

Emballages souillés :

Vider complètement le récipient. Conserver l'étiquette sur le récipient.

Remettre à un éliminateur agréé.

Les emballages souillés sont à vider de manière optimale; ils peuvent être valorisés/recyclés/réutilisés après avoir été nettoyés de façon adéquate.

Codes déchets (Décision 2014/955/CE, Directive 2008/98/CEE relative aux déchets dangereux) :

07 02 17 déchets contenant des silicones autres que ceux mentionnés sous 07 02 16

RUBRIQUE 14 : INFORMATIONS RELATIVES AU TRANSPORT

Exempté du classement et de l'étiquetage Transport .

14.1. Numéro ONU

-

GAROSIL P (PENTAMER D5) - GAROSILP**14.2. Désignation officielle de transport de l'ONU**

-

14.3. Classe(s) de danger pour le transport

-

14.4. Groupe d'emballage

-

14.5. Dangers pour l'environnement

-

14.6. Précautions particulières à prendre par l'utilisateur

-

RUBRIQUE 15 : INFORMATIONS RÉGLEMENTAIRES**15.1. Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement****- Informations relatives à la classification et à l'étiquetage figurant dans la rubrique 2 :**

Les réglementations suivantes ont été prises en compte :

- Règlement (CE) n° 1272/2008 modifié par le règlement (UE) n° 2018/1480 (ATP 13)
- Règlement (CE) n° 1272/2008 modifié par le règlement (UE) n° 2019/521 (ATP 12)

- Informations relatives à l'emballage :

Aucune donnée n'est disponible.

- Dispositions particulières :

Aucune donnée n'est disponible.

- Nomenclature des installations classées (Version 47 d'avril 2019, prise en compte des dispositions de la directive 2012/18/UE dite Seveso 3) :

N° ICPE	Désignation de la rubrique	Régime	Rayon
1436	Liquides de point éclair compris entre 60 °C et 93 °C, à l'exception des boissons alcoolisées (stockage ou emploi de). La quantité totale susceptible d'être présente dans les installations, y compris dans les cavités souterraines étant : 1. Supérieure ou égale à 1 000 t 2. Supérieure ou égale à 100 t mais inférieure à 1 000 t	A DC	2
1436	Liquides combustibles de point éclair compris entre 60° C et 93° C (stockage ou emploi de).		

Régime = A: autorisation ; E: Enregistrement ; D: déclaration ; S: servitude d'utilité publique ; C: soumis au contrôle périodique prévu par l'article L. 512-11 du code de l'environnement.

Rayon = Rayon d'affichage en kilomètres.

15.2. Évaluation de la sécurité chimique

Une évaluation de la sécurité chimique (CSR : Chemical Safety Report) a été faite pour cette substance.

RUBRIQUE 16 : AUTRES INFORMATIONS

Les conditions de travail de l'utilisateur ne nous étant pas connues, les informations données dans la présente fiche de sécurité sont basées sur l'état de nos connaissances et sur les réglementations tant nationales que communautaires.

Il est toujours de la responsabilité de l'utilisateur de prendre toutes les mesures nécessaires pour répondre aux exigences des lois et réglementations locales.

Les informations données dans la présente fiche de données de sécurité doivent être considérées comme une description des exigences de sécurité relatives à cette substance et non pas comme une garantie des propriétés de celle-ci.

Abréviations :

ADR : Accord européen relatif au transport international de marchandises Dangereuses par la Route.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

OACI : Organisation de l'Aviation Civile Internationale.

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

PBT : Persistante, bioaccumulable et toxique.

vPvB : Très persistante et très bioaccumulable.

SVHC : Substance of Very High Concern.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



TABLE OF CONTENT

1	EXPOSURE SCENARIO 1: INDUSTRIAL USE AS A MONOMER.....	2
2	EXPOSURE SCENARIO 2: INDUSTRIAL USE AS AN INTERMEDIATE.....	6
3	EXPOSURE SCENARIO 3: USE OF D5 IN ELECTRONICS MANUFACTURE.....	10
4	EXPOSURE SCENARIO 4: USE OF PRODUCTS CONTAINING D5 IN THE TEXTILES INDUSTRY.....	13
5	EXPOSURE SCENARIO 5: FORMULATION OF PERSONAL CARE PRODUCTS AND HOUSEHOLD CARE PRODUCTS	17
6	EXPOSURE SCENARIO 6: USE OF PERSONAL CARE PRODUCTS	21
7	EXPOSURE SCENARIO 7: USE OF HOUSEHOLD CARE PRODUCTS CONTAINING D5 IN INDUSTRIAL SETTINGS	24
8	EXPOSURE SCENARIO 8: PROFESSIONAL AND CONSUMER USE OF D5 IN WASHING AND CLEANING PRODUCTS.....	27
9	EXPOSURE SCENARIO 9: PROFESSIONAL AND CONSUMER USE OF D5 IN POLISHES AND WAXES.....	31
10	EXPOSURE SCENARIO 10: USE OF D5 IN DRY CLEANING	35
11	EXPOSURE SCENARIO 11: USE OF D5 AS A LABORATORY REAGENT.....	38

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



1 Exposure scenario 1: Industrial use as a monomer

ES Reference: 2
ES type: Worker
Version: 1.0

1.1 Industrial use as a monomer

Use descriptors	Product categories [PC]: PC 19 Intermediate.
	Secor of uses [SU]: SU 3, 8, 9 Industrial uses Manufacture of bulk, large scale chemicals (including petroleum products): Manufacture of fine chemicals.
	Process categories [PROC]: PROC 1, 3, 8b, 9 Use in closed process, no likelihood of exposure. Use in closed batch process (synthesis or formulation). Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
	Environmental release categories [ERC]: ERC 6a, 6c Industrial use resulting in manufacture of another substance (use of intermediates). Industrial use of monomers for manufacture of thermoplastics.

1.2 Operational conditions and risk management measures

1.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates). ERC 6c: Industrial use of monomers for manufacture of thermoplastics.
Exposure assessment (method/calculation)	EUSES v2.1

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes

Operational conditions

Amounts used	Annual amount per site: 1000 tons Daily amount per site: 10 tons
Duration and frequency of use	Emission days per year: 100
Environmental factors not influenced by risk management	Local freshwater dilution factor: 40 Type of sewage treatment plant: Municipal STP / Onsite STP.
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.0005 Release fraction to wastewater from process (initial release prior to RMM): 0.00005

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	On-site waste water treatment: Onsite STP. Size of industrial sewage treatment plant (m ³ /d): 10000 Use the following chemical treatment methods for wastewater: Before discharge into sewage plants, the product normally needs to be neutralised. Control of pH value. Measures to limit air emissions: Use the following recovery and/or abatement technique for cleaning waste gases: Exhaust air scrubber. Condensation.
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	Size of municipal sewage system/treatment plant (m ³ /d): 10000 Sludge treatment technique: External treatment and disposal of waste should comply with applicable local and/or national regulations. See section 13 of the safety data sheet.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Conditions and measure related to external treatment of waste for disposal	<p>Sludge treatment technique: Sewage Sludge incineration. Recover sludge.</p> <p>Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.</p>
----------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

1.2.2 Contributing exposure scenario controlling worker exposure

PROC 1	Use in closed process, no likelihood of exposure.
PROC 3	Use in closed batch process (synthesis or formulation).
PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	<p>Process categories [PROC] 1, 3: Avoid carrying out activities involving exposure for more than 1 hour.</p> <p>Process categories [PROC] 8b: Avoid carrying out activities involving exposure for more than 15 minutes.</p> <p>Process categories [PROC] 9: Covers daily exposures up to 8 hours (unless stated differently).</p>
Human factors not influenced by risk management	<p>Body weight: 70 kg</p> <p>Process categories [PROC] 1, 3: Covers skin contact area up to 240 cm² (Palm of one hand).</p> <p>Process categories [PROC] 8b, 9: Covers skin contact area up to 480 cm² (Palm of both hands).</p>

Risk management measures

Technical conditions and measures at process level (source) to prevent release	Undertake operation under enclosed conditions.
Technical conditions and measures to control dispersion from source towards the worker	<p>Process categories [PROC] 1: without local exhaust ventilation.</p> <p>Process categories [PROC] 3, 8b, 9: with local exhaust ventilation.</p> <p>Local exhaust ventilation - efficiency of at least [%]: 90% (PROC 3, 9), 97% (PROC 8b)</p>
Organisational measures to prevent/limit releases, dispersion and exposure	Take care for general good hygiene and housekeeping.
Conditions and measures related to personal protection, hygiene and health evaluation	Work in well-ventilated zones or use proper respiratory protection. (large scale). See section 8 of the safety data sheet (Personal protection equipment).
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

1.3 Exposure estimation and reference to its source

1.3.1 Environment

Information about the sub-scenario: -			
Release route	Parameter	Results	Release estimation method
Water	Release fraction to wastewater from process (initial release prior to RMM): Release rate (kg/day):	0.00005 0.5 kg/d	Public domain or Producers data.
Air	Release fraction to air from process (initial release prior to RMM):	0.0005	Public domain or Producers data.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



	Release rate (kg/day):	5 kg/d	
Soil	-	-	-

Environmental exposure	Unit	Environmental exposure prediction (soil/water, air)	Risk characterisation ratio (RCR)	Estimation method
Freshwater	mg/l	1.06E-04	< 0.0885	EUSES v2.1
Marine water	mg/l	1.18E-04	< 3.46	EUSES v2.1
STP	mg/l	2.33E-03	< 1.17E-4	EUSES v2.1

Conclusion: Risk from environmental exposure is driven by marine water. Marine water: Ensure all waste water is collected and treated via a waste water treatment plant.

1.3.2 Health

Relevant Exposure route:
 Worker - inhalative, long-term – systemic
 Worker - dermal, long-term – systemic (Qualitative approach used to conclude safe use.)
 Worker - inhalative, long-term – local
 Worker - dermal, long-term – local (Qualitative approach used to conclude safe use.)

Process categories [PROC] 1

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.03 mg/m ³	< 7.4E-5	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.34 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-5	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.03 mg/m ³	2.97E-4	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 3

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.91 mg/m ³	< 2.2E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.034 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 2.2E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.91 mg/m ³	9.0E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.01 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 8b

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.22 mg/m ³	< 5.4E-4	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 5.4E-4	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.22 mg/m ³	2.2E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 9

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	7.6 mg/m ³	< 1.9E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 1.9E-2	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	7.6 mg/m ³	7.5E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

1.4.1 Environment

Guidance – Environment	-
------------------------	---

1.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



2 Exposure scenario 2: Industrial use as an intermediate

ES Reference: 3
ES type: Worker
Version: 1.0

2.1 Industrial use as an intermediate

Use descriptors	Product categories [PC]: PC 19 Intermediate.
	Secor of uses [SU]: SU 3, 8, 9 Industrial uses. Manufacture of bulk, large scale chemicals (including petroleum products): Manufacture of fine chemicals.
	Process categories [PROC]: PROC 1, 2, 3, 4, 8b, 9 Use in closed process, no likelihood of exposure. Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Use in batch and other process (synthesis) where opportunity for exposure arises. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
	Environmental release categories [ERC]: ERC 6a Industrial use resulting in manufacture of another substance (use of intermediates).

2.2 Operational conditions and risk management measures

2.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Exposure assessment (method/calculation)	EUSES v2.1
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes
Operational conditions	
Amounts used	Annual amount per site: 1000 tons Daily amount per site: 10 tons
Duration and frequency of use	Emission days per year: 100
Environmental factors not influenced by risk management	Local freshwater dilution factor: 40 Type of sewage treatment plant: Municipal STP / Onsite STP.
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.0005 Release fraction to wastewater from process (initial release prior to RMM): 0.00005
Risk management measures	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	On-site waste water treatment: Onsite STP Size of industrial sewage treatment plant (m ³ /d): 10000 Use the following chemical treatment methods for waste water: Before discharge into sewage plants the product normally needs to be neutralised. Control of pH value. Measures to limit air emissions: Use the following recovery and/or abatement technique for cleaning waste gases: Exhaust air scrubber. Condensation.
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	Size of municipal sewage system/treatment plant (m ³ /d): 10000 Sludge treatment technique: External treatment and disposal of waste should comply with applicable local and/or national regulations.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



	See section 13 of the safety data sheet.
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2.2 Contributing exposure scenario controlling worker exposure

PROC 1	Use in closed process, no likelihood of exposure.
PROC 2	Use in closed, continuous process with occasional controlled exposure.
PROC 3	Use in closed batch process (synthesis or formulation).
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises
PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Process categories [PROC] 1, 2, 3, 4 : Avoid carrying out activities involving exposure for more than 1 hour. Process categories [PROC] 8b : Avoid carrying out activities involving exposure for more than 15 minutes. Process categories [PROC] 9 : Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 1, 3 : Covers skin contact area up to 240 cm² (Palm of one hand). Process categories [PROC] 2, 4, 8b, 9 : Covers skin contact area up to 480 cm² (Palm of both hands).

Risk management measures

Technical conditions and measures at process level (source) to prevent release	Undertake operation under enclosed conditions.
Technical conditions and measures to control dispersion from source towards the worker	Process categories [PROC] 1 : without local exhaust ventilation. Process categories [PROC] 2, 3, 4, 8b, 9 : with local exhaust ventilation. Local exhaust ventilation - efficiency of at least [%]: 90% (PROC 2, 3, 4, 9), 97% (PROC 8b)
Organisational measures to prevent/limit releases, dispersion and exposure	Take care for general good hygiene and housekeeping.
Conditions and measures related to personal protection, hygiene and health evaluation	Work in well-ventilated zones or use proper respiratory protection (large scale). See section 8 of the safety data sheet (Personal protection equipment).
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

2.3 Exposure estimation and reference to its source

2.3.1 Environment

Information about the sub-scenario: -

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Release route	Parameter	Results	Release estimation method
Water	Release fraction to wastewater from process (initial release prior to RMM): Release rate (kg/day):	0.00005 0.5 kg/d	Public domain or Producers data
Air	Release fraction to air from process (initial release prior to RMM): Release rate (kg/day):	0.0005 5 kg/d	Public domain or Producers data
Soil	-	-	-

Environmental exposure	Unit	Environmental exposure prediction (soil/water, air)	Risk characterisation ratio (RCR)	Estimation method
Freshwater	mg/l	1.06E-04	< 0.0885	EUSES v2.1
Marine water	mg/l	1.18E-04	< 3.46	EUSES v2.1
STP	mg/l	2.33E-03	< 1.17E-4	EUSES v2.1

Conclusion: Risk from environmental exposure is driven by marine water. Marine water: Ensure all waste water is collected and treated via a waste water treatment plant.

2.3.2 Health

Relevant Exposure route:
 Worker - inhalative, long-term – systemic
 Worker - dermal, long-term – systemic (Qualitative approach used to conclude safe use.)
 Worker - inhalative, long-term – local
 Worker - dermal, long-term – local (Qualitative approach used to conclude safe use.)

Process categories [PROC] 1

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.03 mg/m ³	< 7.4E-5	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.34 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-5	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.03 mg/m ³	2.97E-4	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 2

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.03 mg/m ³	< 7.4E-5	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.14 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-5	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.03 mg/m ³	2.97E-4	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.02 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 3

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.91 mg/m ³	< 2.2E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.034 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 2.2E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.91 mg/m ³	9.0E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.01 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 4

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Worker - inhalative, long-term – systemic	1.5 mg/m ³	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	1.5 mg/m ³	1.5E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 8b

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.22 mg/m ³	< 5.4E-4	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 5.4E-4	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.22 mg/m ³	2.2E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 9

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	7.6 mg/m ³	< 1.9E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 1.9E-2	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	7.6 mg/m ³	7.5E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

2.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

2.4.1 Environment

Guidance – Environment	-
------------------------	---

2.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



3 Exposure scenario 3: Use of D5 in electronics manufacture

ES Reference: 5
ES type: Worker
Version: 1.0

3.1 Use of D5 in electronics manufacture (industrial use)

Use descriptors	Product categories [PC]: PC 1 Adhesives, sealants.
	Secor of uses [SU]: SU 3, 16 Industrial uses. Manufacture of computer, electronic and optical products, electrical equipment.
	Process categories [PROC]: PROC 7, 8b, 9, 10, 13, 14 Industrial spraying. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Roller application or brushing. Treatment of articles by dipping and pouring. Production of preparations or articles by tableting, compression, extrusion, pelletisation.
	Environmental release categories [ERC]: ERC 5 Industrial use resulting in inclusion into or onto a matrix.

3.2 Operational conditions and risk management measures

3.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 5: Industrial use resulting in inclusion into or onto a matrix
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	yes

Operational conditions

Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	Local freshwater dilution factor: -
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.

3.2.2 Contributing exposure scenario controlling worker exposure

PROC 7	Industrial spraying.
--------	----------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC 10	Roller application or brushing.
PROC 13	Treatment of articles by dipping and pouring.
PROC 14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker Process categories [PROC] 7: Automated process with (semi) closed systems. No exposure assessment presented for human health.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 5 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Process categories [PROC] 8b, 9, 10, 13, 14: Covers daily exposures up to 8 hours (unless stated differently). 1 uses per day.
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 8b, 9, 13, 14: Covers skin contact area up to 480 cm² (Palm of both hands) Process categories [PROC] 10: Covers skin contact area up to 960 cm² (Both hands).

Risk management measures

Technical conditions and measures at process level (source) to prevent release	Process categories [PROC] 7: Automated process with (semi) closed systems. No exposure assessment presented for human health.
Technical conditions and measures to control dispersion from source towards the worker	-
Organisational measures to prevent/limit releases, dispersion and exposure	-
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

3.3 Exposure estimation and reference to its source

3.3.1 Environment

Information about the sub-scenario: -
Conclusion: No exposure assessment presented for the environment. The environmental release is considered negligible.

3.3.2 Health

Relevant Exposure route: Worker - inhalative, long-term – systemic Worker - dermal, long-term – systemic (Qualitative approach used to conclude safe use.) Worker - inhalative, long-term – local Worker - dermal, long-term – local (Qualitative approach used to conclude safe use.)

Process categories [PROC] 8b

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.45 mg/m ³	< 1.1E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.035 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 1.1E-3	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Worker - inhalative, long-term - local	0.45 mg/m ³	4.5E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.005 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 9

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	1.5 mg/m ³	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.035 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	1.5 mg/m ³	1.5E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.005 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 10

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	3 mg/m ³	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.07 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	3 mg/m ³	3.0E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.005 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 13

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	3 mg/m ³	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.035 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	3 mg/m ³	3.0E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.005 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 14

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	1.5 mg/m ³	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.017 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	1.5 mg/m ³	1.5E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.0025 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

3.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

3.4.1 Environment

Guidance – Environment	-
------------------------	---

3.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



4 Exposure scenario 4: Use of products containing D5 in the textiles industry

ES Reference: 6
ES type: Worker
Version: 1.0

4.1 Use of products containing D5 in the textiles industry

Use descriptors	Product categories [PC]: PC 34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids
	Secor of uses [SU]: SU 3, 5, 10, 21, 22 Industrial uses Manufacture of textiles, leather, fur Formulation [mixing] of preparations and/or re-packaging (excluding alloys) Consumer uses: Private households (= general public = consumers) Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
	Process categories [PROC]: PROC 5, 7, 8b, 9, 10, 13 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Industrial spraying. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Roller application or brushing. Treatment of articles by dipping and pouring.
	Environmental release categories [ERC]: ERC 2, 4, 6b, 8a, 8b Formulation of preparations. Industrial use of processing aids in processes and products, not becoming part of articles Industrial use of reactive processing aids Wide dispersive indoor use of processing aids in open systems Wide dispersive indoor use of reactive substances in open systems

4.2 Operational conditions and risk management measures

4.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 2: Formulation of preparations. ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles. ERC 6b: Industrial use of reactive processing aids. ERC 8a: Wide dispersive indoor use of processing aids in open systems. ERC 8b: Wide dispersive indoor use of reactive substances in open systems.
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	yes

Operational conditions

Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	Local freshwater dilution factor: -
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-
------------------------------------------------------------------------------------------------------------	---

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.

4.2.2 Contributing exposure scenario controlling worker exposure

PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC 7	Industrial spraying
PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC 10	Roller application or brushing.
PROC 13	Treatment of articles by dipping and pouring
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker Process categories [PROC] 7: StoffenManager (inhalation exposure).

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 5 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Process categories [PROC] 7, 10, 13: Covers daily exposures up to 8 hours (unless stated differently). Process categories [PROC] 5, 8b, 9: Avoid carrying out activities involving exposure for more than 1 hour. 1 uses per day.
Room volume	Assumes room volume of less than [m3]: 100
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 5, 8b, 9, 13: Covers skin contact area up to 480 cm2 (Palm of both hands). Process categories [PROC] 10: Covers skin contact area up to 960 cm2 (Both hands) Process categories [PROC] 7: Covers skin contact area up to 1500 cm2 (Hands and forearms).

Risk management measures

Technical conditions and measures at process level (source) to prevent release	Process categories [PROC] 7: with local exhaust ventilation. Local exhaust ventilation - efficiency of at least [%]: 70% (PROC 7).
Technical conditions and measures to control dispersion from source towards the worker	-
Organisational measures to prevent/limit releases, dispersion and exposure	-
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

4.3 Exposure estimation and reference to its source

4.3.1 Environment

Information about the sub-scenario: -

Conclusion: No exposure assessment presented for the environment. The environmental release is considered negligible.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



4.3.2 Health

Relevant Exposure route:
 Worker - inhalative, long-term – systemic
 Worker - dermal, long-term – systemic (Qualitative approach used to conclude safe use).
 Worker - inhalative, long-term – local
 Worker - dermal, long-term – local (Qualitative approach used to conclude safe use).

Process categories [PROC] 5

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	3 mg/m ³	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	3 mg/m ³	3.0E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 7

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	31.3 mg/m ³	< 7.7E-2	StoffenManager (inhalation exposure).
Worker - dermal, long-term – systemic	-	-	-
Worker - combined, long-term - systemic	-	-	-
Worker - inhalative, long-term - local	31.3 mg/m ³	3.1E-1	StoffenManager (inhalation exposure).
Worker - dermal, long-term - local	-	-	-

Process categories [PROC] 8b

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	3 mg/m ³	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.34 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	3 mg/m ³	3.0E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.05 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 9

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	3 mg/m ³	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.34 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	3 mg/m ³	3.0E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.05 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 10

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	30 mg/m ³	< 7.4E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	1.4 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	30 mg/m ³	3.0E-1	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker
------------------------------------	------------------------	------	------------------------

Process categories [PROC] 13

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	30 mg/m ³	< 7.4E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 7.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	30 mg/m ³	3.0E-1	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

4.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

4.4.1 Environment

Guidance – Environment	-
------------------------	---

4.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



5 Exposure scenario 5: Formulation of personal care products and household care products

ES Reference: 10
ES type: Worker
Version: 1.0

5.1 Formulation of personal care products and household care products (industrial use)

Use descriptors	Product categories [PC]: PC 31, 35, 39 Polishes and wax blends. Washing and cleaning products (including solvent based products). Cosmetics, personal care products.
	Secor of uses [SU]: SU 3, 10 Industrial uses. Formulation [mixing] of preparations and/or re-packaging (excluding alloys).
	Process categories [PROC]: PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 9 Use in closed process, no likelihood of exposure. Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Use in batch and other process (synthesis) where opportunity for exposure arises. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Industrial spraying. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
	Environmental release categories [ERC]: ERC 2. Formulation of preparations.

5.2 Operational conditions and risk management measures

5.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 2: Formulation of preparations
Exposure assessment (method/calculation)	EUSES v2.1
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes
Operational conditions	
Amounts used	Annual amount per site: 500 tons Daily amount per site: 2000 kg
Duration and frequency of use	Emission days per year: 300
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10 Type of sewage treatment plant: Municipal STP.
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.0002 Release fraction to wastewater from process (initial release prior to RMM): 0.0009
Risk management measures	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Marine water: Ensure all waste water is collected and treated via a waste water treatment plant.
Organizational measures to prevent/limit release from site	-

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Conditions and measures related to municipal sewage treatment plant	Size of municipal sewage system/treatment plant (m ³ /d): 2000 Sludge treatment technique: External treatment and disposal of waste should comply with applicable local and/or national regulations. See section 13 of the safety data sheet.
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

5.2.2 Contributing exposure scenario controlling worker exposure

PROC 1	Use in closed process, no likelihood of exposure.
PROC 2	Use in closed, continuous process with occasional controlled exposure.
PROC 3	Use in closed batch process (synthesis or formulation).
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC 7	Industrial spraying.
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Process categories [PROC] 5 : Avoid carrying out activities involving exposure for more than 1 hour. Process categories [PROC], 8a, 8b, 9 : Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 5, 8b, 9 : Covers skin contact area up to 480 cm² (Palm of both hands). Process categories [PROC] 8a : Covers skin contact area up to 960 cm² (Both hands).

Risk management measures

Technical conditions and measures at process level (source) to prevent release	-
Technical conditions and measures to control dispersion from source towards the worker	Process categories [PROC] 1 : without local exhaust ventilation. Process categories [PROC] 2, 3, 4, 5, 7, 8a, 8b, 9 : with local exhaust ventilation. Local exhaust ventilation - efficiency of at least [%]: 90% (PROC (5, 8a, 9), 97% (PROC 8b)
Organisational measures to prevent/limit releases, dispersion and exposure	Take care for general good hygiene and housekeeping.
Conditions and measures related to personal protection, hygiene and health evaluation	Work in well-ventilated zones or use proper respiratory protection. (large scale) See section 8 of the safety data sheet (Personal protection equipment).
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



5.3 Exposure estimation and reference to its source

5.3.1 Environment

Information about the sub-scenario: -			
Release route	Parameter	Results	Release estimation method
Water	Release fraction to wastewater from process (initial release prior to RMM): Release rate (kg/day):	0.0009 1.8 kg/d	Public domain or Producers data
Air	Release fraction to air from process (initial release prior to RMM): Release rate (kg/day):	0.0002 0.4 kg/d	Public domain or Producers data
Soil	-	-	

Environmental exposure	Unit	Environmental exposure prediction (soil/water, air)	Risk characterisation ratio (RCR)	Estimation method
Freshwater	mg/l	6.31E-04	< 0.526	EUSES v2.1
Marine water	mg/l	1.23E-03	< 10.3	EUSES v2.1
STP	mg/l	7.00-03	< 3.5E-4	EUSES v2.1

Conclusion: Risk from environmental exposure is driven by marine water. Marine water: Ensure all waste water is collected and treated via a waste water treatment plant.

5.3.2 Health

Relevant Exposure route:
 Worker - inhalative, long-term – systemic
 Worker - dermal, long-term – systemic (Qualitative approach used to conclude safe use).
 Worker - inhalative, long-term – local
 Worker - dermal, long-term – local (Qualitative approach used to conclude safe use).

Process categories [PROC] 5

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.15 mg/m ³	< 3.7E-4	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.07 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 3.7E-4	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.15 mg/m ³	1.5E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.01 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 8a

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	15 mg/m ³	< 3.7E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.14 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 3.7E-2	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	15 mg/m ³	1.5E-1	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.01 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 8b

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	2.3 mg/m ³	< 5.4E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 5.4E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	2.3 mg/m ³	2.2E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Process categories [PROC] 9

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	1.5 mg/m ³	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.69 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 3.7E-3	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	1.5 mg/m ³	1.5E-2	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.1 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

5.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

5.4.1 Environment

Guidance – Environment	-
------------------------	---

5.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



6 Exposure scenario 6: Use of personal care products

ES Reference: 11
ES type: Worker
Version: 1.0

6.1 Use of personal care products (professional and consumer uses)

Use descriptors	Product categories [PC]: PC 39 Cosmetics, personal care products.
	Secor of uses [SU]: SU 21, 22 Consumer uses: Private households (= general public = consumers). Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
	Process categories [PROC]: PROC 10, 11, 19 Roller application or brushing. Non industrial spraying. Hand-mixing with intimate contact and only PPE available.
	Environmental release categories [ERC]: ERC 8a Wide dispersive indoor use of processing aids in open systems.

6.2 Operational conditions and risk management measures

6.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 8a: Wide dispersive indoor use of processing aids in open systems
Exposure assessment (method/calculation)	EUSES v2.1

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes

Operational conditions

Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: 365
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10 Type of sewage treatment plant: Municipal STP.
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.9 Release fraction to wastewater from process (initial release prior to RMM): 0.1

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

6.2.2 Contributing exposure scenario controlling worker exposure

PROC 10	Roller application or brushing.
PROC 11	Non industrial spraying.
PROC 19	Hand-mixing with intimate contact and only PPE available.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Exposure assessment (method/calculation model)	personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Operational conditions	
Frequency and duration of use	-
Human factors not influenced by risk management	-
Risk management measures	
Technical conditions and measures at process level (source) to prevent release	-
Technical conditions and measures to control dispersion from source towards the worker	-
Organisational measures to prevent/limit releases, dispersion and exposure	-
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

6.3 Exposure estimation and reference to its source

6.3.1 Environment

Information about the sub-scenario: -

Release route	Parameter	Results	Release estimation method
Water	Release fraction to wastewater from process (initial release prior to RMM): Release rate (kg/day):	0.1 -	Public domain or Producers data
Air	Release fraction to air from process (initial release prior to RMM): Release rate (kg/day):	0.9 -	Public domain or Producers data
Soil	-	-	

Environmental exposure	Unit	Environmental exposure prediction (soil/water, air)	Risk characterisation ratio (RCR)	Estimation method
Freshwater	mg/l	2.57E-04	< 0.214	EUSES v2.1
Marine water	mg/l	2.55E-05	< 0.213	EUSES v2.1
STP	mg/l	2.43E-03	< 1.5E-4	EUSES v2.1
Man via Environment - Oral	mg/kg bw/day	3.05E-03	1.2E-04	EUSES v2.1

Conclusion: Risk characterisation ratio (RCR) < 1. No specific risk management measure identified beyond those operational conditions stated.

6.3.2 Health

No exposure assessment presented for human health. Personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



6.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

6.4.1 Environment

Guidance – Environment	-
------------------------	---

6.4.2 Health

Guidance – Workers	-
--------------------	---

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



7 Exposure scenario 7: Use of household care products containing D5 in industrial settings

ES Reference: 12
ES type: Worker
Version: 1.0

7.1 Use of household care products containing D5 in industrial settings

Use descriptors	Product categories [PC]: PC 31, 35 Polishes and wax blends. Washing and cleaning products (including solvent based products).
	Secor of uses [SU]: SU 3 Industrial uses
	Process categories [PROC]: PROC 7, 10, 19 Industrial spraying. Roller application or brushing. Hand-mixing with intimate contact and only PPE available.
	Environmental release categories [ERC]: ERC 4 Industrial use of processing aids in processes and products, not becoming part of articles.

7.2 Operational conditions and risk management measures

7.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes

Operational conditions

Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	Local freshwater dilution factor: - Type of sewage treatment plant: -
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

7.2.2 Contributing exposure scenario controlling worker exposure

PROC 7	Industrial spraying.
PROC 10	Roller application or brushing.
PROC 19	Hand-mixing with intimate contact and only PPE available.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker Process categories [PROC] 7: StoffenManager (inhalation exposure).
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 10 % (unless stated differently).
Vapour pressure	33 Pa at 25°C
Operational conditions	
Frequency and duration of use	Process categories [PROC], 7, 10, 19: Covers daily exposures up to 8 hours (unless stated differently). 1 uses per day.
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 10: Covers skin contact area up to 960 cm² (Both hands). Process categories [PROC] 7: Covers skin contact area up to 1500 cm² (Hands and forearms). Process categories [PROC] 19: Covers skin contact area up to 1500 cm²
Other conditions affecting workers exposure	Indoor use (Worst case assumption).
Risk management measures	
Technical conditions and measures at process level (source) to prevent release	
Technical conditions and measures to control dispersion from source towards the worker	Process categories [PROC] 7, 10, 19: without local exhaust ventilation (worst case assumption).
Organisational measures to prevent/limit releases, dispersion and exposure	Take care for general good hygiene and housekeeping.
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

7.3 Exposure estimation and reference to its source

7.3.1 Environment

Information about the sub-scenario: No exposure assessment presented for the environment. The environmental release is considered negligible.

Conclusion: -

7.3.2 Health

Relevant Exposure route:
 Worker - inhalative, long-term – systemic
 Worker - dermal, long-term – systemic (Qualitative approach used to conclude safe use.)
 Worker - inhalative, long-term – local
 Worker - dermal, long-term – local (Qualitative approach used to conclude safe use.)

Process categories [PROC] 7

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	86 mg/m ³	< 0.21	StoffenManager (inhalation exposure).
Worker - dermal, long-term – systemic	4.3 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.21	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	86 mg/m ³	0.85	StoffenManager (inhalation exposure).
Worker - dermal, long-term - local	0.2 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Process categories [PROC] 10

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	91 mg/m ³	< 0.22	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	2.7 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	91 mg/m ³	0.90	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.2 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 19

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	91 mg/m ³	< 0.22	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	14.1 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	91 mg/m ³	0.90	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.5 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

7.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

7.4.1 Environment

Guidance – Environment	-
------------------------	---

7.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



8 Exposure scenario 8: Professional and consumer use of D5 in washing and cleaning products

ES Reference: 13
ES type: Worker
Version: 1.0

8.1 Professional and consumer use of D5 in washing and cleaning products

Use descriptors	Product categories [PC]: PC 35 Washing and cleaning products (including solvent based products).
	Secor of uses [SU]: SU 21, 22 Consumer uses: Private households (= general public = consumers). Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
	Process categories [PROC]: PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 11, 19 Use in closed process, no likelihood of exposure . Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Use in batch and other process (synthesis) where opportunity for exposure arises. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Industrial spraying. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Roller application or brushing. Non-industrial spraying. Hand-mixing with intimate contact and only PPE available.
	Environmental release categories [ERC]: ERC 8a, 8d Wide dispersive indoor use of processing aids in open systems. Wide dispersive outdoor use of processing aids in open systems.

8.2 Operational conditions and risk management measures

8.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 8a: Wide dispersive indoor use of processing aids in open systems. ERC 8d: Wide dispersive outdoor use of processing aids in open systems.
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes
Operational conditions	
Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	Local freshwater dilution factor: - Type of sewage treatment plant: -
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -
Risk management measures	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

8.2.2 Contributing exposure scenario controlling worker exposure

PROC 1	Use in closed process, no likelihood of exposure.
PROC 2	Use in closed, continuous process with occasional controlled exposure.
PROC 3	Use in closed batch process (synthesis or formulation).
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC 7	Industrial spraying.
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC 10	Roller application or brushing.
PROC 11	Non industrial spraying.
PROC 19	Hand-mixing with intimate contact and only PPE available.
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker Process categories [PROC] 11: StoffenManager (inhalation exposure). Process categories [PROC] 10, 11, 19: Professional use.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 10 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently). 1 uses per day.
Human factors not influenced by risk management	Professional use: Body weight: 70 kg Process categories [PROC] 10: Covers skin contact area up to 480 cm² (Palm of both hands). Process categories [PROC] 11: Covers skin contact area up to 1500 cm² (Hands and forearms). Process categories [PROC] 19: Covers skin contact area up to 1980 cm² Consumer use: Body weight: 65 kg Covers skin contact area up to 1900 cm²
Room volume	Consumer uses: Liquid cleaners: Covers use in room size of ≥ 58m³ Spray cleaners: Covers use in room size of ≥ 15m³
Minimum room ventilation rate for handling/application (air changes per hour):	Consumer uses: Liquid cleaners: 0.5 Spray cleaners: 2.5

Risk management measures

Technical conditions and measures at process level (source) to prevent release	-
Technical conditions and measures to control	-

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



dispersion from source towards the worker	
Organisational measures to prevent /limit releases, dispersion and exposure	-
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

8.3 Exposure estimation and reference to its source

8.3.1 Environment

Information about the sub-scenario: No exposure assessment presented for the environment. The environmental release is considered negligible.

Conclusion: -

8.3.2 Health

Relevant exposure route: Worker - inhalative, long-term – systemic Worker - dermal, long-term – systemic Worker - inhalative, long-term - local Worker - dermal, long-term – local	Consumer - inhalative, long-term - local and systemic Consumer - inhalative, short-term - local and systemic Consumer - dermal, long-term - local and systemic Consumer - dermal, short-term - local and systemic
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Process categories [PROC] 10

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	76 mg/m ³	< 0.19	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	2.7 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	76 mg/m ³	0.75	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.2 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 11

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	86 mg/m ³	< 0.21	StoffenManager (inhalation exposure).
Worker - dermal, long-term – systemic	11 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	86 mg/m ³	0.85	StoffenManager (inhalation exposure).
Worker - dermal, long-term - local	0.5 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 19

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	76 mg/m ³	< 0.19	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	14 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	76 mg/m ³	0.75	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.5 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Consumer uses:

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Consumer - dermal, short-term – systemic	29.2 mg/kg (liquid) 0.25 mg/kg (spray)	n.a.	ConsExpo v4.1
Consumer - inhalative, short-term – systemic	4.07 mg/m3 (liquid) 0.50 mg/m3 (spray)	0.19 -	ConsExpo v4.1
Consumer - dermal, short-term – local	1 mg/cm ² (liquid)	n.a.	ConsExpo v4.1
Consumer - inhalative, short-term – local	4.07 mg/m3 (liquid) 0.50 mg/m3 (spray)	n.a. n.a.	ConsExpo v4.1
Consumer - dermal, long-term – systemic	8.32 mg/kg/d (liquid) 0.25 (mg/kg/d (spray)	n.a. n.a.	ConsExpo v4.1
Consumer - inhalative, long-term – systemic	1.16 mg/m3 (liquid) 0.50 mg/m3 (spray)	< 0.01 -	ConsExpo v4.1
Consumer - dermal, long-term – local	-	-	ConsExpo v4.1
Consumer - inhalative, long-term – local	1.16 mg/m3 (liquid) 0.50 mg/m3 (spray)	0.06	ConsExpo v4.1

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Consumer: The use is assessed to be safe.

8.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

8.4.1 Environment

Guidance – Environment	-
------------------------	---

8.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



9 Exposure scenario 9: Professional and consumer use of D5 in polishes and waxes

ES Reference: 14
ES type: Worker
Version: 1.0

9.1 Professional and consumer use of D5 in polishes and waxes

Use descriptors	Product categories [PC]: PC 31 Polishes and wax blends
	Secor of uses [SU]: SU 21, 22 Consumer uses: Private households (= general public = consumers) Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
	Process categories [PROC]: PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 11, 19 Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Use in batch and other process (synthesis) where opportunity for exposure arises. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Industrial spraying. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Roller application or brushing. Non industrial spraying. Hand-mixing with intimate contact and only PPE available.
	Environmental release categories [ERC]: ERC 8a, 8d Wide dispersive indoor use of processing aids in open systems. Wide dispersive outdoor use of processing aids in open systems.

9.2 Operational conditions and risk management measures

9.2.1 Control of environmental exposure

Environmental release categories [ERC]	ERC 8a: Wide dispersive indoor use of processing aids in open systems ERC 8d: Wide dispersive outdoor use of processing aids in open systems
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	Yes
Operational conditions	
Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	Local freshwater dilution factor: - Type of sewage treatment plant: -
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -
Risk management measures	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

9.2.2 Contributing exposure scenario controlling worker exposure

PROC 1	Use in closed process, no likelihood of exposure.
PROC 2	Use in closed, continuous process with occasional controlled exposure.
PROC 3	Use in closed batch process (synthesis or formulation).
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC 7	Industrial spraying.
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC 8b	Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC 10	Roller application or brushing.
PROC 11	Non industrial spraying.
PROC 19	Hand-mixing with intimate contact and only PPE available.
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker Process categories [PROC] 11 : StoffenManager (inhalation exposure). Process categories [PROC] 10, 11, 19 : Professional use.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 10 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently). 1 uses per day.
Human factors not influenced by risk management	Professional use: Body weight: 70 kg Process categories [PROC] 10 : Covers skin contact area up to 480 cm² (Palm of both hands). Process categories [PROC] 11 : Covers skin contact area up to 1500 cm² (Hands and forearms). Process categories [PROC] 19 : Covers skin contact area up to 1980 cm² Consumer use: Body weight: 65 kg Covers skin contact area up to 430 cm² (Floor polishes)
Room volume	Consumer uses: Floor polishes: Covers use in room size of ≥ 58m³
Minimum room ventilation rate for handling/application (air changes per hour):	Consumer uses: Floor polishes: 0.5

Risk management measures

Technical conditions and measures at process level (source) to prevent release	-
Technical conditions and measures to control	-

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



dispersion from source towards the worker	
Organisational measures to prevent/limit releases, dispersion and exposure	-
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

9.3 Exposure estimation and reference to its source

9.3.1 Environment

Information about the sub-scenario: No exposure assessment presented for the environment. The environmental release is considered negligible.

Conclusion: -

9.3.2 Health

Relevant exposure route: Worker - inhalative, long-term – systemic Worker - dermal, long-term – systemic Worker - inhalative, long-term - local Worker - dermal, long-term – local	Consumer - inhalative, long-term - local and systemic Consumer - inhalative, short-term - local and systemic Consumer - dermal, long-term - local and systemic Consumer - dermal, short-term - local and systemic
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Process categories [PROC] 10

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	76 mg/m ³	< 0.19	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	2.8 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	76 mg/m ³	0.75	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.2 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 11

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	86 mg/m ³	< 0.21	StoffenManager (inhalation exposure).
Worker - dermal, long-term – systemic	10.7 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	86 mg/m ³	0.85	StoffenManager (inhalation exposure).
Worker - dermal, long-term - local	0.5 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

Process categories [PROC] 19

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	76 mg/m ³	< 0.19	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	14.1 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - combined, long-term - systemic	-	< 0.22	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	76 mg/m ³	0.75	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	0.5 mg/cm ²	n.a.	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Consumer uses (Floor polishes):

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Consumer - dermal, short-term – systemic	8.46 mg/kg	n.a.	ConsExpo v4.1
Consumer - inhalative, short-term – systemic	0.936mg/m ³	0.08	ConsExpo v4.1
Consumer - dermal, short-term – local	1.28 mg/cm ²	n.a.	ConsExpo v4.1
Consumer - inhalative, short-term – local	0.936mg/m ³	n.a.	ConsExpo v4.1
Consumer - dermal, long-term – systemic	0.0463 mg/kg bw/day	n.a.	ConsExpo v4.1
Consumer - inhalative, long-term – systemic	0.00512 mg/m ³	< 1.12E-4	ConsExpo v4.1
Consumer - dermal, long-term – local	-	-	ConsExpo v4.1
Consumer - inhalative, long-term – local	0.00512 mg/m ³	4.57E-4	ConsExpo v4.1

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Consumer: The use is assessed to be safe.

9.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

9.4.1 Environment

Guidance – Environment	-
------------------------	---

9.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



10 Exposure scenario 10: Use of D5 in dry cleaning

ES Reference: 15
ES type: Worker
Version: 1.0

10.1 Use of D5 in dry cleaning

Use descriptors	Product categories [PC]: PC 35 Washing and cleaning products (including solvent based products)
	Secor of uses [SU]: SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
	Process categories [PROC]: PROC 2, 8a Use in closed, continuous process with occasional controlled exposure. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
	Environmental release categories [ERC]: -

10.2 Operational conditions and risk management measures

10.2.1 Control of environmental exposure

Environmental release categories [ERC]	-
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.

Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable
Bioaccumulation	yes

Operational conditions

Amounts used	Annual amount per site: - Daily amount per site: -
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	-
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -

Risk management measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

10.2.2 Contributing exposure scenario controlling worker exposure

PROC 2	Use in closed, continuous process with occasional controlled exposure
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C
Operational conditions	
Frequency and duration of use	Process categories [PROC] 5 : Avoid carrying out activities involving exposure for more than 1 hour. Process categories [PROC], 8a, 8b, 9 : Covers daily exposures up to 8 hours (unless stated differently).
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 8a : Covers skin contact area up to 960 cm² (Both hands)
Risk management measures	
Technical conditions and measures at process level (source) to prevent release	-
Technical conditions and measures to control dispersion from source towards the worker	Process categories [PROC] 1 : without local exhaust ventilation. Process categories [PROC] 2, 3, 4, 5, 7, 8a, 8b, 9 : with local exhaust ventilation. Local exhaust ventilation - efficiency of at least [%]: 90% (PROC (5, 8a, 9), 97% (PROC 8b)
Organisational measures to prevent/limit releases, dispersion and exposure	Take care for general good hygiene and housekeeping.
Conditions and measures related to personal protection, hygiene and health evaluation	Work in well-ventilated zones or use proper respiratory protection (large scale). See section 8 of the safety data sheet (Personal protection equipment).
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

10.3 Exposure estimation and reference to its source

10.3.1 Environment

Information about the sub-scenario: -

Conclusion: -

10.3.2 Health

Relevant Exposure route:
Worker - inhalative, short-term – systemic (Process categories [PROC] **8a**)
Worker - inhalative, long-term – systemic (Process categories [PROC] **2**)
Worker - inhalative, long-term – local (Process categories [PROC] **2**)

Process categories [PROC] 2

Exposure route	Predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	76 mg/m ³	< 0.19	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	76 mg/m ³	0.75	ECETOC TRA v2.0 Worker

Process categories [PROC] 8a

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, short-term – systemic	227 mg/ m ³	0.88	ECETOC TRA v2.0 Worker

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



10.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

10.4.1 Environment

Guidance – Environment	-
------------------------	---

10.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



11 Exposure scenario 11: Use of D5 as a laboratory reagent

ES Reference: 19
ES type: Worker
Version: 1.0

11.1 Use of D5 as a laboratory reagent

Use descriptors	Product categories [PC]: PC 21 Laboratory chemicals.
	Secor of uses [SU]: SU 3, 24 Industrial uses. Scientific research and development.
	Process categories [PROC]: PROC 15 Use as laboratory reagent.
	Environmental release categories [ERC]: -

11.2 Operational conditions and risk management measures

11.2.1 Control of environmental exposure

Environmental release categories [ERC]	-
Exposure assessment (method/calculation)	No exposure assessment presented for the environment. The environmental release is considered negligible.
Product characteristics	
Physical form of the product	Liquid
Concentration of substance in product	-
Vapour pressure	33 Pa at 25°C
Biodegradation	Not biodegradable.
Bioaccumulation	yes
Operational conditions	
Amounts used	Annual amount per site: - Daily amount per site: < 10 grams
Duration and frequency of use	Emission days per year: -
Environmental factors not influenced by risk management	-
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): - Release fraction to wastewater from process (initial release prior to RMM): -
Risk management measures	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	-
Organizational measures to prevent/limit release from site	-
Conditions and measures related to municipal sewage treatment plant	-
Conditions and measure related to external treatment of waste for disposal	Sludge treatment technique: Sewage Sludge incineration. Recover sludge. Waste management measures: Incineration, disposal or recycling at specific offsite provider. External treatment and disposal of waste should comply with applicable local and/or national regulations.

11.2.2 Contributing exposure scenario controlling worker exposure

PROC 15	Use as laboratory reagent.
Exposure assessment (method/calculation model)	ECETOC TRA v2.0 Worker

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



Product characteristics

Physical form of the product	Liquid
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	33 Pa at 25°C

Operational conditions

Frequency and duration of use	Process categories [PROC] 15 : Avoid carrying out activities involving exposure for more than 15 minutes. 1 uses per day.
Human factors not influenced by risk management	Body weight: 70 kg Process categories [PROC] 15 : Covers skin contact area up to 240 cm² (Palm of one hand)

Risk management measures

Technical conditions and measures at process level (source) to prevent release	Undertake operation under enclosed conditions.
Technical conditions and measures to control dispersion from source towards the worker	Process categories [PROC] 15 : with local exhaust ventilation
Organisational measures to prevent/limit releases, dispersion and exposure	Take care for general good hygiene and housekeeping.
Conditions and measures related to personal protection, hygiene and health evaluation	-
Other risk management measures	-
Additional good practice advice beyond the REACH Chemical Safety Report	-

11.3 Exposure estimation and reference to its source

11.3.1 Environment

Information about the sub-scenario: No exposure assessment presented for the environment. The environmental release is considered negligible.

Conclusion: -

11.3.2 Health

Relevant exposure route:
 Worker - inhalative, long-term – systemic
 Worker - dermal, long-term – systemic
 Worker - inhalative, long-term - local
 Worker - dermal, long-term – local

Process categories [PROC] 15

Exposure route	predicted exposure level	Risk characterisation ratio (RCR)	Exposure assessment (method / calculation model)
Worker - inhalative, long-term – systemic	0.76 mg/m ³	< 0.0019	ECETOC TRA v2.0 Worker
Worker - inhalative, long-term - local	0.76 mg/m ³	0.0075	ECETOC TRA v2.0 Worker
Worker - dermal, long-term – systemic	0.034 mg/kg bw/day	n.a.	ECETOC TRA v2.0 Worker
Worker - dermal, long-term - local	-		

Conclusion: Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

11.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling)

11.4.1 Environment

Guidance – Environment	-
------------------------	---

ANNEX TO THE SAFETY DATA SHEET : Garosil P (Pentamer D5)	Page:	1 / 40
Exposure scenarios [Decamethylcyclopentasiloxane] (EC 208-764-9)	Issuing date:	V1.0 10/07/17



11.4.2 Health

Guidance – Workers	For scaling see: http://echa.europa.eu/guidance-documents/guidance-on-reach (ECHA Guidance for Downstream Users)
--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------