SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name

HI-TRI™° SMG Solvent

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the substance or mixture
Use for partial cleaning by vapor degreasing in closed systems - industrial use
Formulation
Extraction solvents for bitumen in asphalt analysis
Packaging, manufacturing facility
Packaging, site of downstream user

Uses advised against
Uses which are not mentioned in the relevant identified uses.

Reference to relevant exposure scenarios
For an overview of the exact titles of the relevant exposure scenarios please refer to section 16 of this SDS.

1.3 Details of the supplier of the safety data sheet

Address
SAFECHEM Europe GmbH
Tersteegenstr. 25
40474 Düsseldorf
Germany

Telephone no. +49 211 4389300
Fax no. +49 211 4389389
e-mail service@safechem.com

Advice on Safety Data Sheet
sds@safechem.com

1.4 Emergency telephone number

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)
In case of transport incidents and other emergencies:
+44 (0) 1235 239 670 (NCEC, National Chemical Emergency Centre)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 (CLP)
Aquatic Chronic 3; H412
Carc. 1B; H350
Eye Irrit. 2; H319
Muta. 2; H341
Skin Irrit. 2; H315
Skin Sens. 1B; H317
STOT SE 3; H336

Classification information
This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:
Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP
Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3, 4 and 5 of Annex I to CLP.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)

Hazard pictograms

GHS07

GHS08

Signal word
Danger

Hazardous component(s) to be indicated on label:
trichloroethylene

Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects
H350	May cause cancer
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.

Supplemental label elements
"Restricted to professional users"

2.3 Other hazards

PBT assessment
The product is not considered to be a PBT.

vPvB assessment
The product is not considered to be a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable. The product is not a substance.

3.2 Mixtures

Hazardous ingredients

No	Substance name		Additional information	
	CAS / EC / Index / REACH no	Classification (EC) 1272/2008 (CLP)	Concentration	%
1	**trichloroethylene**			
	79-01-6 201-167-4 602-027-00-9 01-2119490731-36	Skin Irrit. 2; H315 Skin Sens. 1B; H317 Eye Irrit. 2; H319 STOT SE 3; H336 Muta. 2; H341 Carc. 1B; H350 Aquatic Chronic 3; H412	< 100.00	%-b.w.

Full Text for all H-phrases and EUH-phrases: pls. see section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Adhere to personal protective measures when giving first aid. If the patient is likely to become unconscious, place and transport in stable sideways position. In case of persisting adverse effects, consult a physician. In case of allergic symptoms, especially respiratory tract related, seek medical help immediately. Remove contaminated clothing and shoes immediately, and launder thoroughly before reusing.

After inhalation
Remove affected persons from dangerous area by observing suitable respiratory protection measures. Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, administer artificial respiration. When giving mouth-to-mouth resuscitation first aider should take precautions to protect himself using a mask. Take medical treatment.

After skin contact
In case of contact with skin wash off immediately with soap and water.

After eye contact
Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes).

After ingestion
Call a doctor immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed
No data available.

4.3 Indication of any immediate medical attention and special treatment needed
Exposure to product may lead to increased myocardial agitation. Only give patients sympathetic nervous system stimulating agents in extreme emergencies. Consumption of alcohol before or after exposure may increase side effects.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray jet; Dry chemical extinguisher; Carbon dioxide; Foam

Unsuitable extinguishing media
High power water jet

5.2 Special hazards arising from the substance or mixture
In the event of fire, the following can be released: Carbon monoxide and carbon dioxide; Hydrogen chloride (HCl); Traces of: Chlorine (Cl2); Phosgene; Vapours are heavier than air and may spread along floors.

5.3 Advice for firefighters
In event of a fire immediately cordon off the area and evacuate all persons from the danger zone. Use self-contained breathing apparatus. Wear full protective suit. Containers close to fire should be transferred to a safe place. Cool closed containers exposed to fire with water. Do not allow run-off from fire fighting to enter drains or water courses. Heat causes increase in pressure and risk of bursting.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Use personal protective clothing. Keep people away and stay on the upwind side. Provide good room ventilation even at ground level (vapours are heavier than air).

For emergency responders
Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions
Do not discharge into the drains/surface waters/groundwater. Do not discharge into the subsoil/soil. In case of entry into waterways, soil or drains, inform the responsible authorities.

6.3 Methods and material for containment and cleaning up

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13). Prevent spread over a wide area (by containment with sand or earth). Pump off large amounts.

6.4 Reference to other sections

Information regarding safe handling, see chapter 7. Information regarding personal protective measures, see chapter 8. Information regarding waste disposal, see chapter 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Product inherent handling risks must be minimised taking the appropriate measures for protection and preventive actions. The working process should be designed to rule out the release of hazardous substances or skin contact as far it is possible by the state of the art. Provide good room ventilation even at ground level (vapours are heavier than air). Where possible, use closed apparatuses.

General protective and hygiene measures

Do not inhale vapours. Do not eat, drink or smoke during work time. After worktime and during work intervals the affected skin areas must be thoroughly cleaned. Avoid contact with eyes and skin. Keep away from foodstuffs and beverages. Provide eye wash fountain in work area. Have emergency shower available.

Advice on protection against fire and explosion

The product vapours are heavier than air.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep container tightly closed and dry in a cool, well-ventilated place. Protect from heat and direct sunlight. Keep away from sources of ignition. Protect from light.

Requirements for storage rooms and vessels

Containers which are opened must be carefully closed and kept upright to prevent leakage.
Inappropriate material zinc; aluminium; aluminum alloys; plastic

Advice on storage assembly

Substances to be avoided, pls. See chapter 10.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

No	Substance name	CAS no.		EC no.	
1	**trichloroethylene**	**79-01-6**		**201-167-4**	
	List of approved workplace exposure limits (WELs) / EH40				
	Trichloroethylene				
	STEL	820	mg/m³	150	ml/m³
	TWA	550	mg/m³	100	ml/m³
	Skin resorption / sensibilisation	Sk			

DNEL, DMEL and PNEC values

DNEL values (worker)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	**trichloroethylene**			**79-01-6** **201-167-4**	
	dermal	Long term (chronic)	systemic	7.8	mg/kg/day
	inhalative	Long term (chronic)	systemic	54.7	mg/m³
	inhalative	Short term (acut)	systemic	164.7	mg/m³

PNEC values

No	Substance name		CAS / EC no	
	ecological compartment	Type	Value	
1	**trichloroethylene**		**79-01-6** **201-167-4**	
	water	fresh water	0.115	mg/l
	water	marine water	0.011	mg/l
	water	fresh water sediment	2.04	mg/kg dry weight
	water	marine water sediment	0.204	mg/kg dry weight
	soil	-	0.344	mg/kg dry weight
	sewage treatment plant	-	2.6	mg/l
	secondary poisoning	-	13.8	mg/kg food

8.2 Exposure controls

Appropriate engineering controls
Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL (=Occupational Exposure Limit), suitable respiratory protection must be worn.

Personal protective equipment

Respiratory protection
If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of aerosol and mist formation, take appropriate measures for breathing protection in the event workplace threshold values are not specified. Filter A or environment-independent breathing apparatus.

Eye / face protection
Tightly fitting safety glasses (EN 166).

Hand protection
Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product . Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.

Appropriate Material	ethyl vinyl alcohol laminate (EVAL)		
Appropriate Material	polyvinyl alcohol		
Appropriate Material	viton		
Appropriate Material	In case of short-term contact / splash protection:		
Material thickness	>	0.35	mm
Breakthrough time	>	10	min
Appropriate Material	In case of longer-term contact:		
Material thickness	>	0.35	mm
Breakthrough time	>	120	min
Inappropriate material	PVC		

Other
Chemical-resistant work clothes.

Environmental exposure controls
No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form/Colour
liquid
colourless

Odour
characteristic

Odour threshold
No data available

pH value
No data available

Boiling point / boiling range			
Value		86.7	°C
Reference pressure		760	mm Hg
Source	Supplier		

Melting point / melting range
No data available

Decomposition point / decomposition range
No data available

Flash point	
Method	ASTM D 56
Source	Supplier
Remarks	nonflammable

Auto-ignition temperature			
Value		410	°C
Method	DIN 51794		
Source	Supplier		

Oxidising properties
not oxidizing

Explosive properties
The product does not have explosive properties.

Flammability (solid, gas)
No data available

Lower flammability or explosive limits			
Value		8.0	% vol
Source	Supplier		

Upper flammability or explosive limits			
Value		44.8	% vol
Source	Supplier		

Vapour pressure			
Value		9.9	kPa
Reference temperature		25	°C
Source	Supplier		

Vapour density		
Value	4.5	
Source	Supplier	

Evaporation rate
No data available

Relative density
No data available

Density
No data available

Solubility in water			
Value		0.11	%
Source	Supplier		

Solubility(ies)
No data available

Partition coefficient: n-octanol/water
No data available

Viscosity			
Value		0.58	mPa*s
Reference temperature		20	°C
Type	dynamic		
Source	Supplier		

9.2 Other information

Other information
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available.

10.2 Chemical stability
Stable under recommended storage and handling conditions (See section 7).

10.3 Possibility of hazardous reactions
Dangerous reactions are not to be expected when handling product according to its intended use.

10.4 Conditions to avoid
Hazard of decomposition at higher temperatures. Heat, naked flames and other ignition sources. Protect from sun.

10.5 Incompatible materials
strong bases; strong oxidizing agents; reactive metals (i.e. sodium, calcium, zinc etc.); Earth alkali metals; Alkali metals; Avoid unintentional contact with: Amines; Explosive dichloroacetylene is formed through reaction with alkali metal hydroxides and epoxides.

10.6 Hazardous decomposition products
Phosgene; Hydrogen chloride (HCl); Chlorine

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
No data available

Acute dermal toxicity
No data available

Acute inhalational toxicity
No data available

Skin corrosion/irritation			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

Species	rabbit
Method	OECD 404
Source	ECHA
Evaluation	irritant

Serious eye damage/irritation
No data available

Respiratory or skin sensitisation			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

Route of exposure	Skin
Species	mouse
Method	OECD 429
Source	ECHA
Evaluation	sensitizing

Germ cell mutagenicity
No data available

Reproduction toxicity
No data available

Carcinogenicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

Method	NTP protocol
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

STOT - single exposure
No data available

STOT - repeated exposure
No data available

Aspiration hazard
No data available

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)					
No	**Substance name**	**CAS no.**		**EC no.**	
1	**trichloroethylene**	**79-01-6**		**201-167-4**	
LC50		28.3		mg/l	
Duration of exposure		96		h	
Species	Jordanella floridae				
Method	EPA-660 / 3-75-009				
Source	ECHA				

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

EC50		20.8	mg/l
Duration of exposure		48	h
Species	Daphnia magna		
Method	NEN 6501		
Source	ECHA		

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)
No data available

Toxicity to algae (chronic)
No data available

Bacteria toxicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

EC50		260	mg/l
Duration of exposure		3	h
Species	activated sludge		
Method	OECD 209		
Source	ECHA		

12.2 Persistence and degradability

Biodegradability			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

Type	aerobic biodegradation		
Value		19	
Duration		28	day(s)
Method	OECD 301 D		
Source	ECHA		
Evaluation	not readily biodegradable		

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.

12.6 Other adverse effects

No data available.

12.7 Other information

Other information
Product is not allowed to discharge into aquatic environment, drains or sewage treatment plants.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Dispose of according to all applicable regulations upon consultation of the local competent authorities and the disposer in a suitable and authorised disposal facility.
Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging

Residuals must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

SECTION 14: Transport information

14.1 Transport ADR/RID/ADN

Class	6.1
Classification code	T1
Packing group	III
Hazard identification no.	60
UN number	UN1710
Technical name	TRICHLOROETHYLENE
Tunnel restriction code	E
Label	6.1

14.2 Transport IMDG

Class	6.1
Packing group	III
UN number	UN1710
Proper shipping name	TRICHLOROETHYLENE
EmS	F-A+S-A
Label	6.1

14.3 Transport ICAO-TI / IATA

Class	6.1
Packing group	III
UN number	UN1710
Proper shipping name	Trichloroethylene
Label	6.1

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not relevant

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)			
The product contains following substance(s) that are considered being a substance subject to Authorisation) according to REACH regulation ((EC) 1907/2006) annexe XIV:			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

REACH candidate list of substances of very high concern (SVHC) for authorisation			
The product contains following substance(s) meeting the criteria in Article 57 in association with Article 59 of the REACH regulation ((EC) 1907/2006) that are placed on the list of candidates considered for inclusion in annexe XIV (substances subject to Authorisation).			
No	**Substance name**	**CAS no.**	**EC no.**
1	**trichloroethylene**	**79-01-6**	**201-167-4**

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, PREPARATIONS AND ARTICLES				
The product is considered being subject to REACH regulation (EC) 1907/2006 annexe XVII.			No 3	
The product contains following substance(s) that are considered being subject to REACH regulation (EC) 1907/2006 annex XVII.				
No	**Substance name**	**CAS no.**	**EC no.**	**No**
1	**trichloroethylene**	**79-01-6**	**201-167-4**	**28**

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances
This product is not subject to Part 1 or 2 of Annex I.

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance.

SECTION 16: Other information

Further information
™°Trademark of Blue Cube LLC

Sources of key data used to compile the data sheet:
Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.
EC Directives 2000/39/EC, 2006/15/EC, 2009/161/EU
National Threshold Limit Values of the corresponding countries as amended in each case.
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

List of existing exposition scenarios

ES001	used for parts cleaning through vapour degreasing in closed process - industrial use
ES002	Formulation in a mixture
ES003	extraction solvent used to determinate the bitumen content in asphalt testing
ES004	packaging, manufacturing site
ES005	packaging, downstream user site
ES006	Use as process chemical (enclosed systems) in Alcantara material production

Department issuing safety data sheet
UMCO GmbH - D-21107 Hamburg, Georg-Wilhelm-Strasse 187, Tel.: +49(40)555 546 300, Fax: +49(40)555 546 357, e-mail: umco@umco.de

This information is based on our present knowledge and experience.
The safety data sheet describes products with a view to safety requirements.
It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Prod-ID 723287

SECTION 1: Title and scope of exposure scenario (ES)

1.1 Title exposure scenario (ES)

ES1 used for parts cleaning through vapour degreasing in closed process - industrial use

1.2 Scope of exposure scenario (ES)

ES Type	Worker Exposure Scenario for substance/mixture
Life cycle stage	Industrial end use

Product identifier

Trade name	HI-TRI™° SMG Solvent

Use descriptors

Sector of use (SU)		
Category	Code	Use description
Main user group	SU3	Industrial uses
Environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC7	Industrial use of substances in closed systems
Specific Environmental Release Category (SpERC)	ECCA SPERC 5.1b.v1	ECCA SPERC 5.1b.v1

Process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC1	Use in closed process, no likelihood of exposure
	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC15	Use as laboratory reagent

SECTION 2: Operational conditions (OC) and risk management measures (RMM) controlling exposure towards environment and men

2.1 Product characteristics

State of aggregation		
liquid		
Reference temperature	25	°C

Vapour pressure		
Value	9.9	kPa
Reference temperature	25	°C
Source	Supplier	

Other information
The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site.
For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

2.2 Contributing scenario controlling environmental exposure

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC7	Industrial use of substances in closed systems
Specific Environmental Release Category (SpERC)	ECCA SPERC 5.1b.v1	ECCA SPERC 5.1b.v1

Operational conditions controlling environmental exposure

daily quantity used on site			
	ERC7		
Value	0.0067 kg/d		

Risk management measures (RMM) controlling environmental exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)		
ERC7	Measures	Vapour degreaser must meet the requirements for ECSA type IV machines or better.

Organisational measures
No special measures are required.

Measures related to wastewater treatment and efficiency of the risk managment measures (in exposure calculation model)		
ERC7	Measures	Ensure all waste water is collected and treated via a WWTP.
	Efficiency (%)	88.8

Measures related to waste treatment
For further instructions related to waste management please refer to section 13 of the Safety Data Sheet.

Further measures	
ERC7	Consider SpERC Fact-Sheet

2.3 Contributing scenario controlling worker exposure

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC1	Use in closed process, no likelihood of exposure
	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC15	Use as laboratory reagent

Operational conditions controlling worker exposure

Concentration of substance						
	PROC1		PROC3		PROC8a	
Value	≤ 100	%	≤ 100	%	≤ 100	%
	PROC8b		PROC15			
Value	≤ 100	%	≤ 100	%		

Use conditions						
	PROC1		PROC3		PROC8a	
Duration of use	≤ 8	hours/day	≤ 8	hours/day	≤ 1	hours/day
	PROC8b		PROC15			
Duration of use	≤ 1	hours/day	≤ 1	hours/day		

Further operational conditions	
PROC1	Assumes a good basic standard of occupational hygiene is implemented.
PROC3	Assumes a good basic standard of occupational hygiene is implemented.
PROC8a	Assumes a good basic standard of occupational hygiene is implemented.
PROC8b	Assumes a good basic standard of occupational hygiene is implemented.
PROC15	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures (RMM) controlling worker exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)
No special measures are required.

Organisational measures	
PROC1	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
PROC3	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
PROC8a	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
	Avoid carrying out activities involving exposure for more than 1 hour.
PROC8b	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
	Avoid carrying out activities involving exposure for more than 1 hour.
PROC15	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
	Avoid carrying out activities involving exposure for more than 1 hour.

Personal protective equipment and efficiency of the risk managment measures (in exposure calculation model)

Respiratory protection		
PROC8a	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95
PROC15	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	90

Eye / face protection		
PROC1	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC3	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC8a	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC8b	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC15	Measures	Wear suitable eye protection if exposure to the eyes may be possible.

Hand protection		
PROC1	Measures	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Efficiency (%)	90
PROC3	Measures	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Efficiency (%)	90
PROC8a	Measures	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Efficiency (%)	90
PROC8b	Measures	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Efficiency (%)	90
PROC15	Measures	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Efficiency (%)	90

Other		
PROC1	Measures	Wear standard work clothes.
PROC3	Measures	Wear standard work clothes.
PROC8a	Measures	Wear standard work clothes.
PROC8b	Measures	Wear standard work clothes.
PROC15	Measures	Wear standard work clothes.

SECTION 3: Exposure estimation and reference to sources

3.1 Advice

The Risk Characterization Ratio (RCR) is the quotient of predicted human/environmental exposure and the related DNEL/PNEC. Exposure is calculated based on exposure models as stated below. If RCR ≤ 1 a use is considered as safe under operational conditions and risk management measures as specified in the exposure szenario.

For DNEL/PNEC values please refer to section 8 of the safety data sheet.

3.2 Exposure estimation - Environment

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC7	Industrial use of substances in closed systems
Specific Environmental Release Category (SpERC)	ECCA SPERC 5.1b.v1	ECCA SPERC 5.1b.v1

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	EUSES-Model SpERC based exposure assessment.
Link to exposure estimation tool	EUSES: https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances

Risk characterisation ratio (RCR)			
	ERC7		
Freshwater	0.000		
Freshwater sediment	0.000		
Seawater	0.000		
Marine sediment	0.000		
Soil	0.000		

3.3 Exposure estimation - Worker

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC1	Use in closed process, no likelihood of exposure
	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC15	Use as laboratory reagent

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

Other information	
PROC1	Exposure assessment model: ECETOC TRA

SECTION 4: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Recommendations and advice

Recommendations and general advice

- For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the “ECHA Guidance for downstream users” http://echa.europa.eu/regulations/reach/downstream-users

4.2 Exposure estimation - Environment

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	EUSES-Model SpERC based exposure assessment.
Link to exposure estimation tool	EUSES: https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances

Further input parameters used for environmental exposure estimation				
	ERC7			
Effluent discharge volume of STP	≥	2000	m³/d	
River flow rate	≥	18000	m³/d	

4.3 Exposure estimation - Worker

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

Trade name: HI-TRI™ SMG Solvent

Current version : 1.1.0, issued: 28.07.2017 **Replaced version:** 1.0.0, issued: 18.07.2017 **Region:** GB

SECTION 1: Title and scope of exposure scenario (ES)

1.1 Title exposure scenario (ES)

ES2 Formulation in a mixture

1.2 Scope of exposure scenario (ES)

ES Type	Worker Exposure Scenario for substance/mixture
Life cycle stage	Formulation

Product identifier

Trade name	HI-TRI™ SMG Solvent

Use descriptors

Sector of use (SU)		
Category	Code	Use description
Main user group	SU3	Industrial uses
Environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1
Process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC15	Use as laboratory reagent

SECTION 2: Operational conditions (OC) and risk management measures (RMM) controlling exposure towards environment and men

2.1 Product characteristics

State of aggregation		
liquid		
Reference temperature	25	°C

Vapour pressure		
Value	9.9	kPa
Reference temperature	25	°C
Source	Supplier	

Other information
The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site.
For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

2.2 Contributing scenario controlling environmental exposure

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1

Operational conditions controlling environmental exposure

daily quantity used on site			
	ERC2		
Value	15.33 kg/d		

Risk management measures (RMM) controlling environmental exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)
No special measures are required.

Organisational measures
No special measures are required.

Measures related to wastewater treatment and efficiency of the risk managment measures (in exposure calculation model)		
ERC2	Measures	Ensure all waste water is collected and treated via a WWTP.
	Efficiency (%)	89.61

Measures related to waste treatment
For further instructions related to waste management please refer to section 13 of the Safety Data Sheet.

Further measures	
ERC2	Consider SpERC Fact-Sheet

2.3 Contributing scenario controlling worker exposure

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC15	Use as laboratory reagent

Operational conditions controlling worker exposure

Concentration of substance			
	PROC3	PROC8b	PROC15
Value	≤ 100 %	≤ 100 %	≤ 100 %

Use conditions			
	PROC3	PROC8b	PROC15
Duration of use	≤ 4 hours/day	≤ 1 hours/day	≤ 15 min/day

Further operational conditions	
PROC3	Assumes a good basic standard of occupational hygiene is implemented.
PROC8b	Assumes a good basic standard of occupational hygiene is implemented.
PROC15	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures (RMM) controlling worker exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)
No special measures are required.

Organisational measures	
PROC3	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 4 hours.
PROC8b	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 1 hour.
PROC15	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 15 minutes.

Personal protective equipment and efficiency of the risk managment measures (in exposure calculation model)

Respiratory protection		
PROC8b	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95

Eye / face protection		
PROC3	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC8b	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC15	Measures	Wear suitable eye protection if exposure to the eyes may be possible.

Hand protection		
PROC3	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC8b	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC15	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95

Other		
PROC3	Measures	Wear standard work clothes.
PROC8b	Measures	Wear standard work clothes.
PROC15	Measures	Wear standard work clothes.

SECTION 3: Exposure estimation and reference to sources

3.1 Advice

The Risk Characterization Ratio (RCR) is the quotient of predicted human/environmental exposure and the related DNEL/PNEC. Exposure is calculated based on exposure models as stated below. If RCR ≤ 1 a use is considered as safe under operational conditions and risk management measures as specified in the exposure szenario.

For DNEL/PNEC values please refer to section 8 of the safety data sheet.

3.2 Exposure estimation - Environment

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use. SpERC based exposure assessment.

3.3 Exposure estimation - Worker

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC15	Use as laboratory reagent

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 4: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Recommendations and advice

Recommendations and general advice

- For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the “ECHA Guidance for downstream users” http://echa.europa.eu/regulations/reach/downstream-users

4.2 Exposure estimation - Environment

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use. SpERC based exposure assessment.

Further input parameters used for environmental exposure estimation				
	ERC2			
Effluent discharge volume of STP	≥	2000	m³/d	
River flow rate	≥	18000	m³/d	

4.3 Exposure estimation - Worker

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 1: Title and scope of exposure scenario (ES)

1.1 Title exposure scenario (ES)

ES3 extraction solvent used to determinate the bitumen content in asphalt testing

1.2 Scope of exposure scenario (ES)

ES Type	Worker Exposure Scenario for substance/mixture
Life cycle stage	Professional end use

Product identifier

Trade name	HI-TRI™° SMG Solvent

Use descriptors

Sector of use (SU)		
Category	Code	Use description
Main user group	SU22	Professional uses
Environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC9a	Wide dispersive indoor use of substances in closed systems

Process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	PROC15	Use as laboratory reagent

SECTION 2: Operational conditions (OC) and risk management measures (RMM) controlling exposure towards environment and men

2.1 Product characteristics

State of aggregation		
liquid		
Reference temperature	25	°C

Vapour pressure		
Value	9.9	kPa
Reference temperature	25	°C
Source	Supplier	

Other information
The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site.
For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

2.2 Contributing scenario controlling environmental exposure

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC9a	Wide dispersive indoor use of substances in closed systems

Risk management measures (RMM) controlling environmental exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)
No special measures are required.

Organisational measures
No special measures are required.

Measures related to wastewater treatment and efficiency of the risk managment measures (in exposure calculation model)		
ERC9a	Measures	Ensure all waste water is collected and treated via a WWTP.
	Efficiency (%)	89.61

Measures related to waste treatment
For further instructions related to waste management please refer to section 13 of the Safety Data Sheet.

2.3 Contributing scenario controlling worker exposure

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	PROC15	Use as laboratory reagent

Operational conditions controlling worker exposure

Concentration of substance						
	PROC3		PROC8b		PROC9	
Value	≤ 100	%	≤ 100	%	≤ 100	%
	PROC15					
Value	≤ 100	%				

Use conditions					
	PROC8b		PROC9		
Duration of use	≤ 1	hours/day	≤ 15	min.	

Further operational conditions	
PROC3	Assumes a good basic standard of occupational hygiene is implemented.
PROC8b	Assumes a good basic standard of occupational hygiene is implemented.
PROC9	Assumes a good basic standard of occupational hygiene is implemented.
PROC15	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures (RMM) controlling worker exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)		
PROC3	Measures	Handle substance within a closed system
	Measures	Handle only at a place with local exhaust system (or another appropriate exhaust).
	Efficiency (%)	90
PROC8b	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).
PROC9	Measures	Handle only at a place with local exhaust system (or another appropriate exhaust).
	Efficiency (%)	90
PROC15	Measures	Handle only at a place with local exhaust system (or another appropriate exhaust).
	Efficiency (%)	90

Organisational measures	
PROC3	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
PROC8b	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
	Avoid carrying out activities involving exposure for more than 1 hour.
PROC9	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area
	Avoid carrying out activities involving exposure for more than 15 minutes.
PROC15	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular inspection and maintenance of equipment and machinery.
	Regular cleaning of work area

Personal protective equipment and efficiency of the risk managment measures (in exposure calculation model)

Respiratory protection		
PROC8b	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95
PROC9	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95

Eye / face protection		
PROC3	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC8b	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC9	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC15	Measures	Wear suitable eye protection if exposure to the eyes may be possible.

Hand protection		
PROC3	Measures	Wear suitable gloves tested to EN374.
PROC8b	Measures	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Efficiency (%)	90
PROC9	Measures	Wear suitable gloves tested to EN374.
PROC15	Measures	Wear suitable gloves tested to EN374.

Other		
PROC3	Measures	Wear standard work clothes.
PROC8b	Measures	Wear standard work clothes.
PROC9	Measures	Wear standard work clothes.
PROC15	Measures	Wear standard work clothes.

SECTION 3: Exposure estimation and reference to sources

3.1 Advice

The Risk Characterization Ratio (RCR) is the quotient of predicted human/environmental exposure and the related DNEL/PNEC. Exposure is calculated based on exposure models as stated below. If RCR ≤ 1 a use is considered as safe under operational conditions and risk management measures as specified in the exposure szenario.

For DNEL/PNEC values please refer to section 8 of the safety data sheet.

3.2 Exposure estimation - Environment

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC9a	Wide dispersive indoor use of substances in closed systems

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

3.3 Exposure estimation - Worker

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC3	Use in closed batch process (synthesis or formulation)
	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	PROC15	Use as laboratory reagent

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 4: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Recommendations and advice

Recommendations and general advice

- For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the “ECHA Guidance for downstream users” http://echa.europa.eu/regulations/reach/downstream-users

4.2 Exposure estimation - Environment

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

Further input parameters used for environmental exposure estimation				
	ERC9a			
Effluent discharge volume of STP	≥ 2000	m³/d		
River flow rate	≥ 18000	m³/d		

4.3 Exposure estimation - Worker

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 1: Title and scope of exposure scenario (ES)

1.1 Title exposure scenario (ES)

ES4 packaging, manufacturing site

1.2 Scope of exposure scenario (ES)

ES Type	Worker Exposure Scenario for substance/mixture
Life cycle stage	Formulation

Product identifier

Trade name	HI-TRI™° SMG Solvent

Use descriptors

Sector of use (SU)		
Category	Code	Use description
Main user group	SU3	Industrial uses
Environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1
Process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

SECTION 2: Operational conditions (OC) and risk management measures (RMM) controlling exposure towards environment and men

2.1 Product characteristics

State of aggregation		
liquid		
Reference temperature	25	°C

Vapour pressure		
Value	9.9	kPa
Reference temperature	25	°C
Source	Supplier	

Other information
The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site.

2.2 Contributing scenario controlling environmental exposure

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1

Operational conditions controlling environmental exposure

daily quantity used on site			
	ERC2		
Value	86.67 kg/d		

Risk management measures (RMM) controlling environmental exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)
No special measures are required.

Organisational measures
No special measures are required.

Measures related to wastewater treatment and efficiency of the risk managment measures (in exposure calculation model)		
ERC2	Measures	Ensure all waste water is collected and treated via a WWTP.
	Efficiency (%)	89.61

Measures related to waste treatment
For further instructions related to waste management please refer to section 13 of the Safety Data Sheet.

Further measures	
ERC2	Consider SpERC Fact-Sheet

2.3 Contributing scenario controlling worker exposure

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Operational conditions controlling worker exposure

Concentration of substance			
	PROC8b	PROC9	
Value	≤ 100 %	≤ 100 %	

Use conditions			
	PROC8b	PROC9	
Location of use	Outdoor use	Indoor use	
Duration of use	≤ 4 hours/day	≤ 4 hours/day	

Further operational conditions	
PROC8b	Assumes a good basic standard of occupational hygiene is implemented.
PROC9	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures (RMM) controlling worker exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)		
PROC8b	Measures	Ensure material transfers are under containment or extract ventilation.
PROC9	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).
	Measures	Handle only at a place with local exhaust system (or another appropriate exhaust).
	Efficiency (%)	90

Organisational measures	
PROC8b	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 4 hours.
PROC9	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 4 hours.

Personal protective equipment and efficiency of the risk managment measures (in exposure calculation model)

Eye / face protection		
PROC8b	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC9	Measures	Wear suitable eye protection if exposure to the eyes may be possible.

Hand protection		
PROC8b	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC9	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95

Other		
PROC8b	Measures	Wear standard work clothes.
PROC9	Measures	Wear standard work clothes.

SECTION 3: Exposure estimation and reference to sources

3.1 Advice

The Risk Characterization Ratio (RCR) is the quotient of predicted human/environmental exposure and the related DNEL/PNEC. Exposure is calculated based on exposure models as stated below. If RCR ≤ 1 a use is considered as safe under operational conditions and risk management measures as specified in the exposure szenario.

For DNEL/PNEC values please refer to section 8 of the safety data sheet.

3.2 Exposure estimation - Environment

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use. SpERC based exposure assessment.

3.3 Exposure estimation - Worker

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 4: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Recommendations and advice

Recommendations and general advice

- For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the “ECHA Guidance for downstream users” http://echa.europa.eu/regulations/reach/downstream-users

4.2 Exposure estimation - Environment

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use. SpERC based exposure assessment.

Further input parameters used for environmental exposure estimation			
	ERC2		
Effluent discharge volume of STP	≥ 2000 m³/d		
River flow rate	≥ 18000 m³/d		

4.3 Exposure estimation - Worker

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

Trade name: HI-TRI™° SMG Solvent

Current version : 1.1.1, issued: 12.10.2017 **Replaced version:** 1.1.0, issued: 28.07.2017 **Region:** GB

SECTION 1: Title and scope of exposure scenario (ES)

1.1 Title exposure scenario (ES)

ES5 packaging, downstream user site

1.2 Scope of exposure scenario (ES)

ES Type	Worker Exposure Scenario for substance/mixture
Life cycle stage	Formulation

Product identifier

Trade name	HI-TRI™° SMG Solvent

Use descriptors

Sector of use (SU)		
Category	Code	Use description
Main user group	SU3	Industrial uses
Environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1
Process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

SECTION 2: Operational conditions (OC) and risk management measures (RMM) controlling exposure towards environment and men

2.1 Product characteristics

State of aggregation		
liquid		
Reference temperature	25	°C

Vapour pressure		
Value	9.9	kPa
Reference temperature	25	°C
Source	Supplier	

Other information
The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site.
For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

2.2 Contributing scenario controlling environmental exposure

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1

Operational conditions controlling environmental exposure

daily quantity used on site			
	ERC2		
Value	3.5 kg/d		

Risk management measures (RMM) controlling environmental exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)
No special measures are required.

Organisational measures
No special measures are required.

Measures related to wastewater treatment and efficiency of the risk managment measures (in exposure calculation model)		
ERC2	Measures	Ensure all waste water is collected and treated via a WWTP.
	Efficiency (%)	89.61

Measures related to waste treatment
For further instructions related to waste management please refer to section 13 of the Safety Data Sheet.

Further measures	
ERC2	Consider SpERC Fact-Sheet

2.3 Contributing scenario controlling worker exposure

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Operational conditions controlling worker exposure

Concentration of substance			
	PROC8b	PROC9	
Value	≤ 100 %	≤ 100 %	

Use conditions			
	PROC8b	PROC9	
Location of use	Outdoor use	Outdoor use	
Duration of use	≤ 15 min/day	≤ 4 hours/day	

Conditions for indoor use			
	PROC9		
Room size	> 3000 m³		

Further operational conditions	
PROC8b	Assumes a good basic standard of occupational hygiene is implemented.
PROC9	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures (RMM) controlling worker exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)		
PROC8b	Measures	Gas recirculation system
	Efficiency (%)	80
PROC9	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).
	Measures	Gas recirculation system
	Efficiency (%)	80
	Measures	Handle only at a place with local exhaust system (or another appropriate exhaust).
	Efficiency (%)	90

Organisational measures	
PROC8b	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 15 minutes.
PROC9	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 4 hours.

Personal protective equipment and efficiency of the risk managment measures (in exposure calculation model)

Eye / face protection		
PROC8b	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC9	Measures	Wear suitable eye protection if exposure to the eyes may be possible.

Hand protection		
PROC8b	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC9	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95

Other		
PROC8b	Measures	Wear standard work clothes.
PROC9	Measures	Wear standard work clothes.

SECTION 3: Exposure estimation and reference to sources

3.1 Advice

The Risk Characterization Ratio (RCR) is the quotient of predicted human/environmental exposure and the related DNEL/PNEC. Exposure is calculated based on exposure models as stated below. If RCR ≤ 1 a use is considered as safe under operational conditions and risk management measures as specified in the exposure szenario.

For DNEL/PNEC values please refer to section 8 of the safety data sheet.

3.2 Exposure estimation - Environment

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC2	Formulation of preparations
Specific Environmental Release Category (SpERC)	ESVOC 3	ESVOC SpERC 1.1b.v1

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use. SpERC based exposure assessment.

3.3 Exposure estimation - Worker

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 4: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Recommendations and advice

Recommendations and general advice

- For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the “ECHA Guidance for downstream users” http://echa.europa.eu/regulations/reach/downstream-users

4.2 Exposure estimation - Environment

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use. SpERC based exposure assessment.

Further input parameters used for environmental exposure estimation				
	ERC2			
Effluent discharge volume of STP	≥	2000	m³/d	
River flow rate	≥	18000	m³/d	

4.3 Exposure estimation - Worker

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 1: Title and scope of exposure scenario (ES)

1.1 Title exposure scenario (ES)

ES6 Use as process chemical (enclosed systems) in Alcantara material production

1.2 Scope of exposure scenario (ES)

ES Type	Worker Exposure Scenario for substance/mixture
Life cycle stage	Industrial end use

Product identifier

Trade name	HI-TRI™° SMG Solvent

Use descriptors

Sector of use (SU)		
Category	Code	Use description
Main user group	SU3	Industrial uses
Environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
Process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC1	Use in closed process, no likelihood of exposure
	PROC2	Use in closed, continuous process with occasional controlled exposure
	PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
	PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelettisation
	PROC15	Use as laboratory reagent

SECTION 2: Operational conditions (OC) and risk management measures (RMM) controlling exposure towards environment and men

2.1 Product characteristics

State of aggregation		
liquid		
Reference temperature	25	°C

Vapour pressure		
Value	9.9	kPa
Reference temperature	25	°C
Source	Supplier	

Other information
The efficiency of a risk management measure is a theoretical value. The efficiency describes to which extend (in percent) the calculated exposure can be diminished by applying a certain measure. If the described operational conditions and risk management measures are fulfilled by a downstream user, the efficiency as highlighted in the ES can be applied. A downstream user might check whether the efficiency of the LEV or general ventilation corresponds to his site.
For further instructions related to "Personal protective equipment" please refer to section 8 of the Safety Data Sheet.

2.2 Contributing scenario controlling environmental exposure

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC4	Industrial use of processing aids in processes and products, not becoming part of articles

Operational conditions controlling environmental exposure

daily quantity used on site			
	ERC4		
Value	200 kg/d		

Emission conditions			
	ERC4		
Type of emission	Continuous release		
Duration of emission	300 days/year		

Risk management measures (RMM) controlling environmental exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)		
ERC4	Measures	Waste gas treatment by thermal or catalytic oxidation or equal measures to reduce emissions to air.

Organisational measures
No special measures are required.

Measures related to wastewater treatment and efficiency of the risk managment measures (in exposure calculation model)		
ERC4	Measures	Ensure all waste water is collected and treated via a WWTP.
	Efficiency (%)	89.6

Measures related to waste treatment
For further instructions related to waste management please refer to section 13 of the Safety Data Sheet.

2.3 Contributing scenario controlling worker exposure

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC1	Use in closed process, no likelihood of exposure
	PROC2	Use in closed, continuous process with occasional controlled exposure
	PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
	PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelettisation
	PROC15	Use as laboratory reagent

Operational conditions controlling worker exposure

Concentration of substance			
	PROC1	PROC2	PROC5
Value	≤ 100 %	≤ 100 %	≤ 100 %
	PROC14	PROC15	
Value	≤ 100 %	≤ 100 %	

Use conditions			
	PROC5	PROC14	PROC15
Duration of use	≤ 1 hours/day	≤ 4 hours/day	≤ 15 min/day

Conditions for indoor use			
	PROC2	PROC5	PROC14
Room size	> 3000 m³	> 3000 m³	> 3000 m³
	PROC15		
Room size	> 3000 m³		

Further operational conditions	
PROC1	Assumes a good basic standard of occupational hygiene is implemented.
PROC2	Assumes a good basic standard of occupational hygiene is implemented.
PROC5	Assumes a good basic standard of occupational hygiene is implemented.
PROC14	Assumes a good basic standard of occupational hygiene is implemented.
PROC15	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures (RMM) controlling worker exposure

Technical measures and efficiency of the risk managment measures (in exposure calculation model)		
PROC1	Measures	Handle substance within a closed system
PROC2	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).
	Measures	Carry out in a vented booth or extracted enclosure.
	Efficiency (%)	90
PROC5	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).
PROC14	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).
	Measures	Handle only at a place with local exhaust system (or another appropriate exhaust).
	Efficiency (%)	90
PROC15	Measures	Provide a good standard of generell ventilation (1 to 3 air changes per hour).

Organisational measures	
PROC1	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
PROC2	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
PROC5	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 1 hour.
PROC14	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 4 hours.
PROC15	Only trained personnel handle the substance (training once per year).
	Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
	Regular cleaning of work area
	Regular inspection and maintenance of equipment and machinery.
	Avoid carrying out activities involving exposure for more than 15 minutes.

Personal protective equipment and efficiency of the risk managment measures (in exposure calculation model)

Respiratory protection		
PROC5	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95
PROC14	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95
PROC15	Measures	Wear a respirator conforming to EN140 with Type A filter or better.
	Efficiency (%)	95

Eye / face protection		
PROC1	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC2	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC5	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC14	Measures	Wear suitable eye protection if exposure to the eyes may be possible.
PROC15	Measures	Wear suitable eye protection if exposure to the eyes may be possible.

Hand protection		
PROC1	Measures	Wear suitable gloves tested to EN374.
PROC2	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC5	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC14	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95
PROC15	Measures	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
	Efficiency (%)	95

Other		
PROC1	Measures	Wear standard work clothes.
PROC2	Measures	Wear standard work clothes.
PROC5	Measures	Wear standard work clothes.
PROC14	Measures	Wear standard work clothes.
PROC15	Measures	Wear standard work clothes.

SECTION 3: Exposure estimation and reference to sources

3.1 Advice

The Risk Characterization Ratio (RCR) is the quotient of predicted human/environmental exposure and the related DNEL/PNEC. Exposure is calculated based on exposure models as stated below. If RCR ≤ 1 a use is considered as safe under operational conditions and risk management measures as specified in the exposure szenario.

For DNEL/PNEC values please refer to section 8 of the safety data sheet.

3.2 Exposure estimation - Environment

Affected environmental release category (ERC)		
Category	Code	Use description
Environmental release category (ERC)	ERC4	Industrial use of processing aids in processes and products, not becoming part of articles

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	ECETOC TRA
Link to exposure estimation tool	ECETOC: http://www.ecetoc.org/tra

Risk characterisation ratio (RCR)			
	ERC4		
Freshwater	0.002		
Freshwater sediment	0.002		
Seawater	0.002		
Marine sediment	0.002		
Soil	0.830		
Risc determining compartment	Soil		

3.3 Exposure estimation - Worker

Affected process category (PROC)		
Category	Code	Use description
Process category (PROC)	PROC1	Use in closed process, no likelihood of exposure
	PROC2	Use in closed, continuous process with occasional controlled exposure
	PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
	PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelettisation
	PROC15	Use as laboratory reagent

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.

SECTION 4: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

4.1 Recommendations and advice

Recommendations and general advice

- For additional instructions relating to adaptation of conditions of use in view of a scaling, pls. see the “ECHA Guidance for downstream users” http://echa.europa.eu/regulations/reach/downstream-users

4.2 Exposure estimation - Environment

Used exposure estimation model for calculation of environmental exposure	
Used exposure estimation model	ECETOC TRA
Link to exposure estimation tool	ECETOC: http://www.ecetoc.org/tra

Further input parameters used for environmental exposure estimation			
	ERC4		
Effluent discharge volume of STP	≥ 2400 m³/d		
River flow rate	≥ 1944000 m³/d		

4.3 Exposure estimation - Worker

Used exposure estimation model for calculation of worker exposure	
Used exposure estimation model	Qualitative approach used to conclude safe use.