エイチ・シー・スタルク株式会社 クレビオス製品群

Clevios® P Grades					
商品名	用途	導電率	粘度	特記事項	
		S/cm	mPas at 100 S ⁻¹		
Clevios® P	帯電防止の原料(全ての用途)	~1 (80)	60~100	もっとも基本的なグレードで顧客で自らフォーミュレートしないとコーティング困難。	
Clevios® P AG	帯電防止の原料(全ての用途)	~3 (200)	20~100	少々導電率が高いがスタルクとしては、あまりお勧めしない(agfa社製品)。	
Clevios® PH	光学用途での帯電防止剤として	~0.3 (65)	15~30	光学特性を上げるため導電率を少し犠牲にしている。	
Clevios® P HS	高い固形分でペーストの原料として	~1	>200	固形分が高いという以外、基本的な導電性はClevios Pと同様。	
Clevios® P HC V4	高導電タイプの原料(ITOの代替)	~5-10 (<mark>400</mark>)	100~350		
Clevios® P H 500	高導電タイプの原料(ITOの代替)	~1 (400-550)	8~25	高導電材料の原料(自らフォーミュレートが必要。)	
Clevios® P H 510	高導電タイプの原料(ITOの代替)	~1 (400-550)	20~100	高導電材料の原料(自らフォーミュレートが必要。)PH500の固形分が高いタイプ	
Clevios® P VP AI 4083	 有機EL又は有機太陽電池	~10 ⁻³	30		
Clevios® P VP CH 8000	有機EL(パッシブ用)又は有機太陽電池	~10 ⁻⁵	20	クロストークを防ぐため比較的高抵抗	
Clevios® P JET	 インクジェット用途	~10 ⁻³	8	インクジェット用として開発	
Clevios® P JET HC	インクジェット用途(比較的導電率が高いタイプ)	~50-90	20 (700 S ⁻¹)	インクジェット用として開発	
Clevios® P JET N	P JETの中性化タイプ	30-90	8 - 18	インクジェット用として開発	
Clevios® P JET HC V2	電材用途でインクジェット、高導電タイプ	min. 300	5 - 15	インクジェット用として開発	
		$(\pm 5\% DMSO)$			

(+5%DMSO)

Clevios® Formulations					
商品名	用途	表面抵抗	粘度	特記事項	
			mPas at 100 S ⁻¹		
Clevios® F 141 M	耐溶剤タイプ、帯電防止用途	6 µm wet 0,1 Mohm/sq.	20 - 60	レディートゥユーズ、このままコーティングが可能。	
Clevios® F PVA	熱成型材料、帯電防止用途	18 µm wet 3 Kohm/sq.		レディートゥユーズ、このままコーティングが可能。	
Clevios® F CPP 105DM	導電コーティング	18 µm wet 2 Kohm/sq.	10 - 50	レディートゥユーズ、このままコーティングが可能。	
Clevios® F E	ITO代替用途	12 µm wet 340 ohm/sq.	10 - 30	レディートゥユーズ、このままコーティングが可能。	
Clevios® S HT	スクリーンペースト、無機EL用途(光学特性がよい)	テストプリント < 12000hm/sq	3 - 5 dPas	レディートゥユーズ、このままコーティングが可能。(粘度が高い)	
Clevios® S V3	スクリーンペースト、無機EL用途	テストプリント< 7000hm/sq	15 - 200 dPas	レディートゥユーズ、このままコーティングが可能。(粘度が高い)	

Clevios® Special garde					
商品名	用途	導電率	粘度	特記事項	
		S/cm	mPas at 100 S ⁻¹		
Clevios® P AI 4083 LVW 142	AI 4083の脱イオン品、有機EL並びに太陽電池	~10 ⁻³	30	顧客の要求(指定)がない限り販売できない。(特殊品)	
Clevios® P AI 4083 LVW 825	AI 4083の脱イオン品、限外ろ過品	~10 ⁻³	30	顧客の要求(指定)がない限り販売できない。(特殊品)	
Clevios® P CH 8000 LVW 176	PEDOT:PSS が1:16 脱イオン品、有機EL並びに太陽電池	~10 ⁻⁵	20	顧客の要求(指定)がない限り販売できない。(特殊品)	
Clevios® P CH 8000 LVW 185	CH 8000の脱イオン品、限外ろ過品	~10 ⁻⁵	20	顧客の要求(指定)がない限り販売できない。(特殊品)	
Clevios® P CH 8000 LVW 419	CH 8000の脱イオン品、限外ろ過品	~10 ⁻⁵	20	顧客の要求(指定)がない限り販売できない。(特殊品)	



CLEVIOS™ P

Version 2.0

Revision Date 08.04.2008

Print Date 14.04.2008

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING **Product information** : CLEVIOS™ P Trade name Use of the **Optical-Industry** 5 Substance/Preparation Company : H. C. Starck GmbH Im Schleeke 78-91 38642 Goslar / Germany **Responsible Department** : Central Support Services - Product Safety Telephone +49(0)5321/751-0 5 E-mail address infoSDS@hcstarck.com : Emergency telephone : +49(0)5321/751-0 2. HAZARDS IDENTIFICATION Classification No classification 3. COMPOSITION/INFORMATION ON INGREDIENTS **Chemical nature** Aqueous solution Hazardous components **Chemical Name** CAS-No. EC-No. Symbol(s) Concentration R-phrase(s) [%] Poly(3,4-155090-83-8 424-490-4 R41 1.3 Xi ethylenedioxythiophene)poly(styrenesulfonate) For the full text of the R-phrases mentioned in this Section, see Section 16. 4. FIRST AID MEASURES If inhaled : Remove to fresh air. If symptoms persist, call a physician. In case of skin contact : Wash off with soap and water. In the case of skin irritation or allergic reactions see a physician. In case of eye contact : Rinse with plenty of water. If eye irritation persists, consult a specialist. : Clean mouth with water and drink afterwards plenty of water. If swallowed Obtain medical attention.



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5. FIRE-FIGHTING MEASURES		
	Not combustible.	
Suitable extinguishing media		ends upon fire in vicinity poses.
Extinguishing media which shall not be used for safety reasons	None known.	
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	None known.	
Special protective equipment for fire-fighters	No special protective equipn	nent required.
Additional advice	None known.	
6. ACCIDENTAL RELEASE MEA Personal precautions	Ventilate the area.	inment
F or the second state of	Use personal protective equ	
Environmental precautions		ter or sanitary sewer system.
Methods for cleaning up	Soak up with inert absorben binder, universal binder, sav Fill into labelled, sealable co	t material (e.g. sand, silica gel, acid vdust). ontainers.
7. HANDLING AND STORAGE		
Handling		
Advice on protection against fire and explosion	No special precautions requ	ired.
Storage		
Requirements for storage areas and containers	Comply with the directives g	overning water law
Further information on storage conditions	Store in original container.	
8. EXPOSURE CONTROLS/PER	NAL PROTECTION	
Exposure Limit Values		
Poly(3,4-ethylenedioxythiophe)-poly(styrenesulfonate); CA	\S-No.: 155090-83-8



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Note	:	No limit value established.	
Personal protective equipm	en	t	
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change the glov remove them according to relevant national and	5
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
General protective measures	:	Handle in accordance with good industrial hygien practice.	ne and safety

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance		
Form	:	liquid
Colour	:	dark blue
Odour	:	very faint
Safety data		
рН	:	ca. 1 - 2 at 20 °C
Change in physical state		
- Pour point	:	ca. 0 °C
-	:	ca. 100 °C
Vapour pressure	:	23.00 hPa at 20 ℃
Density	:	1.0032 g/cm3 at 20 °C
Solubility - Water solubility	:	completely miscible
10. STABILITY AND REACTIVIT	Y	
Conditions to avoid	:	None known.
Materials to avoid	:	None known.
Thermal decomposition	:	No decomposition up to 100 °C
Hazardous decomposition products	:	No decomposition if stored normally. Formation of carbon dioxide (CO2) and carbon monoxide (CO) during thermal decomposition.
000010001596		3/6 SDB_GB (EN)



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11. TOXICOLOGICAL INFORMATION For risk assessment data of relevant ingredients: Acute oral toxicity LD50 rat > 2,500 mg/kg Poly(3,4ethylenedioxythiophene)-Method: Directive 67/548/EEC Annex V, B.1.tris. poly(styrenesulfonate) Skin irritation Poly(3,4rabbit ethylenedioxythiophene)-No skin irritation poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.4. Eye irritation Poly(3,4-: rabbit ethylenedioxythiophene)-Risk of serious damage to eves. Method: Directive 67/548/EEC, Annex V, B.5. poly(styrenesulfonate) Sensitisation Poly(3,4-Maximisation Test guinea pig : ethylenedioxythiophene)-Did not cause sensitization on laboratory animals. poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.6. Repeated dose toxicity Poly(3,4rat Oral ethylenedioxythiophene)-Exposure time: 28-day poly(styrenesulfonate) NOEL: 272 mg/kg Method: Directive 67/548/EEC, Annex V, B.7. Genotoxicity in vitro Poly(3,4-Ames test ethylenedioxythiophene)-Salmonella typhimurium poly(styrenesulfonate) No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available. **12. ECOLOGICAL INFORMATION** For risk assessment data of relevant ingredients: Toxicity to fish Poly(3,4-: Brachydanio rerio (zebra fish) ethylenedioxythiophene)-96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. poly(styrenesulfonate) Toxicity to daphnia and other aquatic invertebrates. Poly(3,4-: Daphnia magna (Water flea) ethylenedioxythiophene)-48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. poly(styrenesulfonate) Toxicity to algae 000010001596 4/6 SDB_GB (EN)



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Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, 0	C.3.
Biodegradability Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Not readily biodegradable.	
13. DISPOSAL CONSIDERATION	S	
Product	: The Federal, regional and local rules and disposal must be complied with. This product is cannot be classified with d acc. to the EU disposal directives as a cla intended utilisation purpose of the consum	isposal identification key ssification results from the
Packaging	: Packaging that is not contaminated and har recycled.	as been cleaned can be
14. TRANSPORT INFORMATION		
Land transport ADR/RID Not dangerous goods		
Air transport ICAO-TI/IATA-DGF Not dangerous goods	2	
Sea transport IMDG Not dangerous goods		
15. REGULATORY INFORMATIO	Ν	
Labelling according to EC D	irectives	
Directive 1999/45/EC		
No labelling required		
National legislation		
Major Accident Hazard Legislation	: 96/82/EC Annex I Number: Is not subject to the Seveso II Di	rective.
16. OTHER INFORMATION		
	ed to under sections 2 and 3	
Full text of R-phrases referre		
-	of serious damage to eyes.	

CLEVIOS™ P

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H.C.Starck

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The above details do not imply any guarantee concerning composition, properties or performance.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.



Print Date 14.04.2008

CLEVIOS™ P AG Version 2.0 Revision Date 08.04.2008 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product	information

Trade name	: CLEVIOS™ P AG	
Use of the Substance/Preparation	: Electrical Industry and Electronics	
Company	: H. C. Starck GmbH Im Schleeke 78-91 38642 Goslar / Germany	
Responsible Department Telephone E-mail address Emergency telephone	 Central Support Services – Product Safety +49(0)5321/751-0 infoSDS@hcstarck.com +49(0)5321/751-0 	

2. HAZARDS IDENTIFICATION

Classification

No classification

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Aqueous solution

Hazardous components

Chemical Name	CAS-No.	EC-No.	Symbol(s)	R-phrase(s)	Concentration [%]
Poly(3,4-	155090-83-8	424-490-4	Xi	R41	1.2
ethylenedioxythiophene)-					
poly(styrenesulfonate)					

For the full text of the R-phrases mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

If inhaled	: Remove to fresh air. If symptoms persist, call a physician.	
In case of skin contact	: Wash off with soap and water. In the case of skin irritation or allergic reactions see a physician.	
In case of eye contact	: Rinse with plenty of water. If eye irritation persists, consult a specialist.	
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Obtain medical attention.	



CLEVIOS™ P AG

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5. FIRE-FIGHTING MEASURES			
Suitable extinguishing media	:	Not combustible. Extinguishing methods depends upon fire	in vicinity poses.
Extinguishing media which shall not be used for safety reasons	:	None known.	
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	:	None known.	
Special protective equipment for fire-fighters	:	No special protective equipment required.	
Additional advice	:	None known.	
Berganal processions	.su		
Personal precautions	:	Ventilate the area. Use personal protective equipment.	
Environmental precautions	:	Do not flush into surface water or sanitary	sewer system.
Methods for cleaning up	:	Soak up with inert absorbent material (e.g. binder, universal binder, sawdust). Fill into labelled, sealable containers.	. sand, silica gel, acid
7. HANDLING AND STORAGE			
Handling			
Advice on protection against fire and explosion	:	No special precautions required.	
Storage			
Requirements for storage areas and containers	:	Comply with the directives governing wate	r law
Further information on storage conditions	:	Store in original container.	
B. EXPOSURE CONTROLS/PER	so	NAL PROTECTION	
Exposure Limit Values			
Personal protective equipn	nen	t	
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Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change the g remove them according to relevant national a	
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
General protective measures	:	Handle in accordance with good industrial hyperactice.	giene and safety

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance		
Form	:	liquid
Colour	:	dark blue
Odour	:	very faint
Safety data pH	:	ca. 1 - 2 at 20 °C
Change in physical state		
- Pour point	:	ca. 0 °C
-	:	ca. 100 °C
Vapour pressure	:	23.00 hPa at 20 °C
Density	:	ca. 1.0028 g/cm3 at 20 °C
Solubility		
- Water solubility	:	completely miscible

10. STABILITY AND REACTIVITY

Conditions to avoid	:	None known.
Materials to avoid	:	None known.
Thermal decomposition	:	No decomposition up to 100 °C
Hazardous decomposition products	:	No decomposition if stored normally. Formation of carbon dioxide (CO2) and carbon monoxide (CO) during thermal decomposition.

11. TOXICOLOGICAL INFORMATION

000010002072



CLEVIOS™ P AG

For risk assessment data of relevant ingredients: Acute oral toxicity Poly(3.4 EDS0 rat > 2.500 mg/kg ethylenedioxythiophene)- poly(styrenesulfonate) Skin irritation Poly(3.4 EDS0 rat > 2.500 mg/kg ethylenedioxythiophene)- poly(styrenesulfonate) Skin irritation poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.4. Eye irritation Poly(3.4 EDS0 rat > 2.500 mg/kg ethylenedioxythiophene)- poly(styrenesulfonate) No skin irritation poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.5. Sensitisation Poly(3.4 EDS0 rat > 2.500 mg/kg ethylenedioxythiophene)- poly(styrenesulfonate) Nethod: Directive 67/548/EEC, Annex V, B.5. Sensitisation Poly(3.4 EDS0 rat > 2.200 mg/kg ethylenedioxythiophene)- poly(styrenesulfonate) Nethod: Directive 67/548/EEC, Annex V, B.6. Repeated dose toxicity Poly(3.4 EDS0 rat > 2.200 mg/kg Method: Directive 67/548/EEC, Annex V, B.7. Genotoxicity in vitro Poly(styrenesulfonate) poly(styrenesulfonate) Po	LEVIOS™ P AG		
Active oral toxicity E. L50 rat > 2.500 mg/kg Poly(3.4 Method: Directive 67/548/EEC Annex V, B.1.tris. Poly(3.4 E. abbit Poly(3.4 Sector 1000000000000000000000000000000000000	ersion 2.0	Revision Date 08.04.2008	Print Date 14.04.2008
Poly(3.4 E. LD50 rat > 2.500 mg/kg Method: Directive 67/548/EEC Annex V, B.1.tris. Poly(3.4 : rabbit ethylenedioxythiophene)- Method: Directive 67/548/EEC, Annex V, B.4. Poly(3.4 : rabbit ethylenedioxythiophene)- Did not cause sensitization on laboratory animals. poly(5tyrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.5. Sensitisation : rat Oral Poly(3.4 : rat Oral Ethylenedioxythiophene)- : Did not cause sensitization on laboratory animals. poly(styrenesulfonate) : rat Oral Poly(3.4 : rat Oral Ethylenedioxythiophene)- : Salmonella typhinurium No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chromosome aberration test in vitro Chromeseries (Sarthiophene)- : Salmonella typhinurium No indicatio	For risk assessment data of re	elevant ingredients:	
Poly(3.4. LD50 rat > 2,500 rg/kg ethylenedicythiophene)- poly(styrenesulfonate) Method: Directive 67/548/EEC Annex V, B.1.tris. Skin irritation No skin irritation Poly(3.4. ir abbit ethylenedicythiophene)- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.4. Everitation No skin irritation Poly(3.4. ir abbit ethylenedicythiophene)- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.5. Sensitisation Irequise and the cause sensitization on laboratory animals. Method: Directive 67/548/EEC, Annex V, B.6. Poly(3.4. ir at Oral ethylenedicythiophene)- poly(styrenesulfonate) Maximisation Test guinea pig Ethylenedicythiophene)- poly(styrenesulfonate) ir at Oral Poly(3.4. ir at Oral ethylenedicythiophene)- poly(styrenesulfonate) Salmonella typhimurium No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chinese Hamster V79 cells No information available. Poly(3.4. Brachydanic rerio (zebra fish) ethylenedicythiophene)- poly(styrenesulfonate) Brachydanic rerio (zebra fish) ethylenedicythiophene)- gel NOEC >= 100 mg/ Method: Directive 67/548/EEC, Annex V, C.1. C	Acute oral toxicity		
ethylenedioxythiophene]- poly(styrenesulfonate) Method: Directive 67/548/EEC Annex V, B.1.tris. Skin irritation Poly(3,4- : rabbit ethylenedioxythiophene]- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.4. Eye irritation Poly(3,4- : rabbit ethylenedioxythiophene]- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.5. Sensitisation Poly(3,4- : rabbit ethylenedioxythiophene]- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.5. Poly(3,4- : maximisation Test guinea pig ethylenedioxythiophene]- poly(styrenesulfonate) Did not cause sensitization on laboratory animals. Did not cause sensitization on laboratory animals. NoEL: 272 mg/kg Method: Directive 67/548/EEC, Annex V, B.6. Repeated dose toxicity ethylenedioxythiophene]- poly(styrenesulfonate) : rat Oral Exposure time: 28-day NOEL: 272 mg/kg Method: Directive 67/548/EEC, Annex V, B.7. Genotoxicity in vitro Poly(3,4- : Ames test ethylenedioxythiophene]- poly(styrenesulfonate) : Ames test No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chinese Hamster V79 cells No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, C.1. Poly(3,4- : Brachydanio rerio (zebra fish) ethylenedioxythiophene]- poly(styrenesulfonate) Poly(3,4- : Daphnia magna (Water fiea) ethylenedioxythiophene]- poly(styrenesulfonate) Poly(3,4- : Daphnia magna (Water fiea) ethylenedioxythi	-	1 D50 rat > 2 500 mg/kg	
poly(styrenesulfonate) Poly(3.4 ethylenedioxythiophene)- poly(s		Method: Directive 67/548/EEC Annex V. B.1.tris.	
Poly(3,4- : rabbit ethylenedioxythiophene)- poly(styrenesulfonate) No skin irritation Poly(3,4- : rabbit Poly(3,4- : rat Oral ethylenedioxythiophene)- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.6. Repeated dose toxicity Poly(3,4- :: rat Oral ethylenedioxythiophene)- poly(styrenesulfonate) : Method: Directive 67/548/EEC, Annex V, B.6. Repeated dose toxicity Poly(3,4- :: rat Oral ethylenedioxythiophene)- poly(styrenesulfonate) : Xepsuse time: 28-day Method: Directive 67/548/EEC, Annex V, B.7. Genotoxicity in vitro Poly(3,4- :: Arnes test Salmonella typhimurium No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available. For risk assessment data of relevant ingredients: Toxicity to fish Poly(3,4- :: Brachydanio rerio (zebra fish) ethylenedioxythiophene)- ethylenedioxythiophene)- ethylenedioxythiophene)- ethylenedioxythiophene)- ethylenedioxythiophene)- ethylenedioxythiophene)- ethylenedioxythiophene)- ethylenedioxythio			
ethylenedioxythiophene)- poly(styrenesulfonate) No skin irritation Method: Directive 67/548/EEC, Annex V, B.4. Eye irritation Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Risk of serious damage to eyes. Poly(3,4- method: Directive 67/548/EEC, Annex V, B.5. Sensitisation Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Maximisation Test guinea pig thylenedioxythiophene)- poly(styrenesulfonate) Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Maximisation Test guinea pig thethod: Directive 67/548/EEC, Annex V, B.6. Repeated dose toxicity ethylenedioxythiophene)- poly(styrenesulfonate) mat Oral texposure time: 28-day NOEL: 272 mg/kg Method: Directive 67/548/EEC, Annex V, B.7. Genotoxicity in vitro Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Salmonella typhinurium No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available. ECOLOGICAL INFORMATION E Brachydanio rerio (zebra fish) ethylenedioxythiophene)- goly(styrenesulfonate) Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) E Brachydanio rerio (zebra fish) ethylenedioxythiophene)- go fish NOEC >= 100 mg/ poly(styrenesulfonate) Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, C.1.	Skin irritation		
poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.4. Eye irritation : rabbit Poly(3,4- :: rabbit sthylenedioxythiophene)-poly(styrenesulfonate) Method: Directive 67/548/EEC, Annex V, B.5. Sensitisation Method: Directive 67/548/EEC, Annex V, B.6. Poly(3,4- :: Maximisation Test guinea pig ethylenedioxythiophene)-poly(styrenesulfonate) Did not cause sensitization on laboratory animals. Poly(3,4- :: rat Oral ethylenedioxythiophene)-poly(styrenesulfonate) :: rat Oral Poly(3,4- :: rat Oral ethylenedioxythiophene)-poly(styrenesulfonate) :: rat Oral Poly(3,4- :: rat Oral ethylenedioxythiophene)-poly(styrenesulfonate) :: rat Oral Poly(3,4- :: rat Oral ethylenedioxythiophene)-poly(styrenesulfonate) :: Ames test Salmonella typhimurium No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14. Chromosome aberration test in vitro Chinese Hamster V79 cells No indication or mutagenic effects. No indication or furtagenic effects. Method: Directive 67/548/EEC, Annex V, C.1. Toxicity tof fish :: Brachydanic rerio (zebra fish)			
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Poly(3.4- athylenedioxythiophane)- poly(styrenesultonate) : Not readily biodegradable. 13. DISPOSAL CONSIDERATIONS Product : The Federal, regional and local rules and regulations governing disposal must be compiled with. This product is cannot be classified with disposal identification key acc. to the EU disposal directives as a classification results from the intended utilisation purpose of the consumer Packaging : Packaging that is not contaminated and has been cleaned can be recycled. 14. TRANSPORT INFORMATION Land transport ADR/RID Not dangerous goods Air transport ADR/RID Not dangerous goods Sat transport MDR/RID Not dangerous goods 15. REGULATORY INFORMATION Labelling according to EC Directives Directive 1999/45/EC No labelling required National legislation Major Accident Hazard Legislation : 96/82/EC Annex 1 Number: Is not subject to the Seveso II Directive. 16. OTHER INFORMATION Full text of R-phrases referred to under sections 2 and 3 Rt1 Risk of serious damage to eyes.			
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Not dangerous goods 15. REGULATORY INFORMATION Labelling according to EC Directives Directive 1999/45/EC No labelling required National legislation Major Accident Hazard : 96/82/EC Legislation : 2000 Annex I Number: Is not subject to the Seveso II Directive. 16. OTHER INFORMATION Full text of R-phrases referred to under sections 2 and 3 R41 Risk of serious damage to eyes.			
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Directive 1999/45/EC No labelling required National legislation Major Accident Hazard Legislation : 96/82/EC Annex I Number: Is not subject to the Seveso II Directive. 16. OTHER INFORMATION Full text of R-phrases referred to under sections 2 and 3 R41 Risk of serious damage to eyes.	15. REGULATORY INFORMATION	I	
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National legislation Major Accident Hazard Legislation : 96/82/EC Annex I Number: Is not subject to the Seveso II Directive. 16. OTHER INFORMATION Full text of R-phrases referred to under sections 2 and 3 R41 Risk of serious damage to eyes.	Directive 1999/45/EC		
Major Accident Hazard Legislation : 96/82/EC Annex I Number: Is not subject to the Seveso II Directive. 16. OTHER INFORMATION Full text of R-phrases referred to under sections 2 and 3 R41 R41 Risk of serious damage to eyes.	No labelling required		
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Full text of R-phrases referred to under sections 2 and 3R41Risk of serious damage to eyes.		Annex I	Directive.
R41 Risk of serious damage to eyes.	16. OTHER INFORMATION		
	-		
Further information		senous damage to eyes.	
	Further information		
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Version 2.0

Revision Date 08.04.2008

Print Date 14.04.2008

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The above details do not imply any guarantee concerning composition, properties or performance.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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SAFETY DATA SHEET ac	cording to Regula	ition (EU) No.	1907/2006	H.C.St	arck 🛕
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Version 1.0	Revi	sion Date 07.	05.2008	Prir	nt Date 23.07.200
1. IDENTIFICATION OF TH	IE SUBSTANCE/	PREPARATI	ON AND OF 1	THE COMPAN'	Y/UNDERTAKING
Product information					
Trade name	: CLEVI	OS™ PH	•		1
Use of the Substance/Preparation	: Optical	I-Industry			
Company	Im Sch	tarck GmbH nleeke 78 - 91 Goslar ny			
Telephone Responsible Departmer E-mail address Emergency telephone	nt : Corpor : infoSD	5321/751-0 rate HSEQ & SI S@hcstarck.co 5321/751-0	IS - Product Sal m	fety	
Classification No classification					
3. COMPOSITION/INFORM	ATION ON INGR	EDIENTS			
Chemical nature	•				
Aqueous polymer dispers					
Hazardous compo	onents				•
Chemical Name	CAS-No.	EC-No.	Symbol(s)	R-phrase(s)	Concentration [%]
Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	155090-83-8	424-490-4	Xi	R41	1.3
For the full text of the	ne R-phrases n	nentioned i	n this Sectio	on, see Secti	on 16.
4. FIRST AID MEASURES					
lf inhaled		e to fresh air. toms persist, ca	ll a physician.		
In case of skin contact		ff with soap and ase of skin irrita		reactions see a p	hysician.

If swallowed

In case of eye contact

:

Clean mouth with water and drink afterwards plenty of water. Obtain medical attention. :

Rinse with plenty of water. If eye irritation persists, consult a specialist.

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5. FIRE-FIGHTING MEASURES		
Suitable extinguishing media	:	Not combustible. Extinguishing methods depends upon fire in vicinity poses.
Extinguishing media which shall not be used for safety reasons	:	None known.
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	:	None known.
Special protective equipment for fire-fighters	:	No special protective equipment required.
Additional advice	:	None known.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	: Ventilate the area. Use personal protective equipment.
Environmental precautions	: Do not flush into surface water or sanitary sewer system.
Methods for cleaning up	 Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Fill into labelled, sealable containers.

7. HANDLING AND STORAGE

Handling		
Advice on protection against fire and explosion	:	No special precautions required.
Storage		· · ·
Requirements for storage areas and containers	;	Comply with the directives governing water law
Further information on storage conditions	:	Store in original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

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SAFETY DATA SHEET according	y iC	Tregulation (EU) NO. 190//2000	H.C. Starck
CLEVIOS™ PH			
Version 1.0		Revision Date 07.05.2008	Print Date 23.07.2008
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product chang remove them according to relevant nat	ge the gloves immediately and ional and local regulations.
Eye protection	:	Safety glasses	•
Body Protection	:	Do not get on skin or clothing.	• •
General protective measures	:	Handle in accordance with good indust practice.	rial hygiene and safety
. PHYSICAL AND CHEMICAL P	RC	PERTIES	
Appearance		<i>и</i>	
Form	:	liquid	
Colour	:	dark blue	
Odour	:	very faint	
Safety data		•	
рН	:	ca. 1 - 2 at 20 °C	
Change in physical state			· · ·
- Pour point	:	ca. 0 °C	
-	:	ca. 100 °C	
Vapour pressure	:	23.00 hPa at 20 °C	·
Density	:	1.0032 g/cm3 at 20 °C	• • •
Solubility - Water solubility	:	completely miscible	
			· · · · · · · · · · · · · · · · · · ·
STABILITY AND REACTIVITY	,		
Conditions to avoid	:	None known.	
Materials to avoid	:	None known.	
Thermal decomposition	:	No decomposition up to 100 °C	
Hazardous decomposition products	:	No decomposition if stored normally. Formation of carbon dioxide (CO2) and thermal decomposition.	carbon monoxide (CO) during

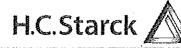
11. TOXICOLOGICAL INFORMATION

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H.C.Starck

rsion 1.0	Revision Date 07.05.2008	Print Date 23.07.2008
For risk assessment data of n	elevant ingredients:	
Acute oral toxicity		
Poly(3,4-	: LD50 rat > 2,500 mg/kg	· · · · · · · · · · · · · · · · · · ·
ethylenedioxythiophene)-	Method: Directive 67/548/EEC Annex V, B.1.tri	5.
poly(styrenesulfonate)	•	
Skin irritation		
Poly(3,4-	rabbit No skin irritation	· .
ethylenedioxythiophene)- poly(styrenesulfonate)	Method; Directive 67/548/EEC, Annex V, B.4.	
Eye irritation		
Poly(3,4-	: rabbit	
ethylenedioxythiophene)-	Risk of serious damage to eyes.	•
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.5.	
Sensitisation		
Poly(3,4-	: Maximisation Test guinea pig	
ethylenedioxythiophene)- poly(styrenesulfonate)	Did not cause sensitization on laboratory anima Method: Directive 67/548/EEC, Annex V, B.6.	als.
	Moulou Brocare erre erre er	
Genotoxicity in vitro	Ames test	
Poly(3,4-	Salmonella typhimurium	
ethylenedioxythiophene)- poly(styrenesulfonate)	No indication of mutagenic effects.	
poly(styrenesulionate)	Method: Directive 67/548/EEC, Annex V, B.14	
	Chromosome aberration test in vitro	``````````````````````````````````````
	Chinese Hamster V79 cells	
	No indication of mutagenic effects.	
	Method: No information available.	
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ECOLOGICAL INFORMAT	ΓΙΟΝ	
·		
For risk assessment data of r		
For risk assessment data of r Toxicity to fish	relevant ingredients:	
For risk assessment data of r Toxicity to fish Poly(3,4-	relevant ingredients: : Brachydanio rerio (zebra fish)	
For risk assessment data of r Toxicity to fish	relevant ingredients:	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	relevant ingredients: : Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1.	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth	relevant ingredients: : Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. : Daphnia magna (Water flea)	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4-	relevant ingredients: : Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. : Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth	relevant ingredients: : Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. : Daphnia magna (Water flea)	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	
For risk assessment data of r Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and oth Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)-	 relevant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. her aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3. 	SDB_WORLD (E

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Version 1.0

CLEVIOS™ PH

Revision Date 07.05.2008

Print Date 23.07.2008

13. DISPOSAL CONSIDERATIONS

Product

The Federal, regional and local rules and regulations governing disposal must be complied with.

Packaging

Packaging that is not contaminated and has been cleaned can be recycled.

14. TRANSPORT INFORMATION

Land transport ADR/RID Not dangerous goods

Air transport ICAO-TI/IATA-DGR Not dangerous goods

Sea transport IMDG Not dangerous goods

15. REGULATORY INFORMATION

Labelling according to EC Directives

Directive 1999/45/EC

No labelling required

16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3

R41 Risk of serious damage to eyes.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The above details do not imply any guarantee concerning composition, properties or performance.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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CLEVIOS™ P HC V4 Version 2.0 Re

Revision Date 08.04.2008

Print Date 07.05.2008

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING **Product information** : CLEVIOS™ P HC V4 Trade name Use of the Electrical Industry and Electronics 5 Substance/Preparation Company : H. C. Starck GmbH Im Schleeke 78-91 38642 Goslar / Germany **Responsible Department** : Central Support Services - Product Safety Telephone +49(0)5321/751-0 5 E-mail address infoSDS@hcstarck.com : Emergency telephone : +49(0)5321/751-0 2. HAZARDS IDENTIFICATION Classification No classification 3. COMPOSITION/INFORMATION ON INGREDIENTS **Chemical nature** Aqueous solution Hazardous components **Chemical Name** CAS-No. EC-No. Concentration Symbol(s) R-phrase(s) [%] Poly(3,4-155090-83-8 424-490-4 R41 1.3 Xi ethylenedioxythiophene)poly(styrenesulfonate) For the full text of the R-phrases mentioned in this Section, see Section 16. 4. FIRST AID MEASURES If inhaled : Remove to fresh air. If symptoms persist, call a physician. In case of skin contact : Wash off with soap and water. In the case of skin irritation or allergic reactions see a physician. In case of eye contact : Rinse with plenty of water. If eye irritation persists, consult a specialist. : Clean mouth with water and drink afterwards plenty of water. If swallowed Obtain medical attention.



CLEVIOS™ P HC V4

	Devision Date 02.04.0000	
Version 2.0	Revision Date 08.04.2008	Print Date 07.05.200
5. FIRE-FIGHTING MEASURES		
Suitable extinguishing media	: Not combustible. Extinguishing methods depends upon fire in	n vicinity poses.
Extinguishing media which shall not be used for safety reasons	: None known.	
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	: None known.	
Special protective equipment for fire-fighters	: No special protective equipment required.	
Additional advice	: None known.	
6. ACCIDENTAL RELEASE MEA	SURES	
Personal precautions	: Ventilate the area. Use personal protective equipment.	
Environmental precautions	: Do not flush into surface water or sanitary s	ewer system.
Methods for cleaning up	: Soak up with inert absorbent material (e.g. s binder, universal binder, sawdust). Fill into labelled, sealable containers.	sand, silica gel, acid
7. HANDLING AND STORAGE		
Handling		
Advice on protection against fire and explosion	: No special precautions required.	
Storage		
Requirements for storage areas and containers	: Comply with the directives governing water	law
Further information on storage conditions	: Store in original container.	
8. EXPOSURE CONTROLS/PER	SONAL PROTECTION	
Exposure Limit Values		
Personal protective equipm	ent	
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Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change the remove them according to relevant national a	
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
General protective measures	:	Handle in accordance with good industrial hy practice.	giene and safety

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance		
Form	:	liquid
Colour	:	dark blue
Odour	:	very faint
Safety data pH	:	ca. 1 - 2 at 20 °C
Change in physical state		
- Pour point	:	ca. 0 °C
-	:	ca. 100 °C
Vapour pressure	:	23.00 hPa at 20 °C
Density	:	ca. 1.0032 g/cm3 at 20 °C
Solubility - Water solubility	:	completely miscible

10. STABILITY AND REACTIVITY

Conditions to avoid	:	None known.
Materials to avoid	:	None known.
Thermal decomposition	:	No decomposition up to 100 °C
Hazardous decomposition products	:	No decomposition if stored normally. Formation of carbon dioxide (CO2) and carbon monoxide (CO) during thermal decomposition.

11. TOXICOLOGICAL INFORMATION

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CLEVIOS™ P HC V4

roion 0.0		
rsion 2.0	Revision Date 08.04.2008	Print Date 07.05.20
For risk assessment data of re	elevant ingredients:	
Acute oral toxicity		
Poly(3,4-	: LD50 rat > 2,500 mg/kg	
ethylenedioxythiophene)-	Method: Directive 67/548/EEC Annex V, B.1.tris.	
poly(styrenesulfonate)		
Skin irritation		
Poly(3,4-	: rabbit	
ethylenedioxythiophene)-	No skin irritation	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.4.	
Eye irritation		
Poly(3,4-	: rabbit	
ethylenedioxythiophene)- poly(styrenesulfonate)	Risk of serious damage to eyes. Method: Directive 67/548/EEC, Annex V, B.5.	
poly(styrenesulionate)	Method. Directive 07/346/EEC, Armex V, D.S.	
Sensitisation	Manipulantian Tantanian aria	
Poly(3,4- ethylenedioxythiophene)-	 Maximisation Test guinea pig Did not cause sensitization on laboratory animals. 	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.6.	
Repeated dose toxicity		
Poly(3,4-	: rat Oral	
ethylenedioxythiophene)-	Exposure time: 28-day	
poly(styrenesulfonate)	NOEL: 272 mg/kg	
	Method: Directive 67/548/EEC, Annex V, B.7.	
Genotoxicity in vitro		
Poly(3,4-	: Ames test	
ethylenedioxythiophene)-	Salmonella typhimurium	
poly(styrenesulfonate)	No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14.	
	Chromosome aberration test in vitro	
	Chinese Hamster V79 cells No indication of mutagenic effects.	
	Chinese Hamster V79 cells	
ECOLOGICAL INFORMAT For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4-	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)-	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4-	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4-	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)-	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available. ION elevant ingredients: : Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. : Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. : Desmodesmus subspicatus 72 h ErC50 54 mg/l	
For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(3,4- ethylenedioxythiophene)- poly(3,4-	Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available. ION elevant ingredients: : Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. : Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. : Desmodesmus subspicatus 72 h ErC50 54 mg/l	



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Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	:	Not readily biodegradable.	
13. DISPOSAL CONSIDERATI	ONS		
Product	:	The Federal, regional and local rules and reg disposal must be complied with. This product is cannot be classified with disp acc. to the EU disposal directives as a classi intended utilisation purpose of the consumer	osal identification key fication results from the
Packaging	:	Packaging that is not contaminated and has recycled.	been cleaned can be
14. TRANSPORT INFORMATIC	ON		
Land transport ADR/RID Not dangerous goods			
Air transport ICAO-TI/IATA-I Not dangerous goods	DGR		
Sea transport IMDG Not dangerous goods			
15. REGULATORY INFORMAT	ION		
Labelling according to EC	Dir	ectives	
Directive 1999/45/EC			
No labelling required			
National legislation			
Major Accident Hazard	:	96/82/EC	
Legislation		Annex I Number: Is not subject to the Seveso II Direc	ctive.
16. OTHER INFORMATION			
	erred	l to under sections 2 and 3	
R41 Ris	sk of s	serious damage to eyes.	
Further information			



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Changes since the last version are highlighted in the margin. This version replaces all previous versions.



CLEVIOS™ PH 500

Version 2.0

Revision Date 08.04.2008

Print Date 07.05.2008

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING **Product information** : CLEVIOS™ PH 500 Trade name Use of the Optical-Industry 5 Substance/Preparation Company : H. C. Starck GmbH Im Schleeke 78-91 38642 Goslar / Germany **Responsible Department** : Central Support Services - Product Safety Telephone +49(0)5321/751-0 5 E-mail address infoSDS@hcstarck.com : Emergency telephone : +49(0)5321/751-0 2. HAZARDS IDENTIFICATION Classification No classification 3. COMPOSITION/INFORMATION ON INGREDIENTS **Chemical nature** Aqueous solution Hazardous components **Chemical Name** CAS-No. EC-No. Symbol(s) Concentration R-phrase(s) [%] Poly(3,4-155090-83-8 424-490-4 R41 1.3 Xi ethylenedioxythiophene)poly(styrenesulfonate) For the full text of the R-phrases mentioned in this Section, see Section 16. 4. FIRST AID MEASURES If inhaled : Remove to fresh air. If symptoms persist, call a physician. In case of skin contact : Wash off with soap and water. In the case of skin irritation or allergic reactions see a physician. In case of eye contact : Rinse with plenty of water. If eye irritation persists, consult a specialist. : Clean mouth with water and drink afterwards plenty of water. If swallowed Obtain medical attention.

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CLEVIOS™ PH 500

Version 2.0	Revision Date 08.04.2008	Print Date 07.05.200
5. FIRE-FIGHTING MEASURES		
Suitable extinguishing media	: Not combustible. Extinguishing methods depends upon fire in v	icinity poses.
Extinguishing media which shall not be used for safety reasons	: None known.	
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	: None known.	
Special protective equipment for fire-fighters	: No special protective equipment required.	
Additional advice	: None known.	
6. ACCIDENTAL RELEASE MEA	SURES	
Personal precautions	: Ventilate the area. Use personal protective equipment.	
Environmental precautions	: Do not flush into surface water or sanitary sev	ver system.
Methods for cleaning up	: Soak up with inert absorbent material (e.g. sa binder, universal binder, sawdust). Fill into labelled, sealable containers.	nd, silica gel, acid
7. HANDLING AND STORAGE		
Handling		
-	: No special precautions required.	
Storage		
Requirements for storage areas and containers	: Comply with the directives governing water la	w
Further information on storage conditions	: Store in original container.	
B. EXPOSURE CONTROLS/PER	SONAL PROTECTION	
Exposure Limit Values		
Poly(3,4-ethylenedioxythiophe	ne)-poly(styrenesulfonate); CAS-No.: 155090-8	3-8
Basis	: EH40 (UK)	
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Note	:	No limit value established.	
Personal protective equipme	en	t	
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change the glov remove them according to relevant national and	-
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
General protective measures	:	Handle in accordance with good industrial hygier practice.	ne and safety

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance		
Form	:	liquid
Colour	:	dark blue
Odour	:	odourless
Safety data pH	:	ca. 1 - 2 at 20 °C
Change in physical state		
-	:	ca. 100 °C
Density	:	1.0032 g/cm3 at 20 °C
Solubility		
- Water solubility	:	completely miscible

10. STABILITY AND REACTIVITY

Conditions to avoid	:	None known.
Materials to avoid	:	None known.
Thermal decomposition	:	No decomposition up to 100 °C
Hazardous decomposition products	:	No decomposition if stored normally. Formation of carbon dioxide (CO2) and carbon monoxide (CO) during thermal decomposition.

11. TOXICOLOGICAL INFORMATION

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CLEVIOS™ PH 500

CLEVIOS™ PH 500		
Version 2.0	Revision Date 08.04.2008	Print Date 07.05.2008
For risk assessment data of re	levant ingredients:	
Acute oral toxicity	DEC rot > 2 E00 mg/kg	
Poly(3,4- ethylenedioxythiophene)-	: LD50 rat > 2,500 mg/kg Method: Directive 67/548/EEC Annex V, B.1.tris.	
poly(styrenesulfonate)	Method. Directive 67/546/EEC Annex V, B. T.uis.	
Skin irritation		
Poly(3,4-	: rabbit	
ethylenedioxythiophene)-	No skin irritation	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.4.	
Eye irritation		
Poly(3,4-	: rabbit	
ethylenedioxythiophene)- poly(styrenesulfonate)	Risk of serious damage to eyes.	
poly(styrenesulionate)	Method: Directive 67/548/EEC, Annex V, B.5.	
Sensitisation	Movimination Test suince size	
Poly(3,4- ethylenedioxythiophene)-	: Maximisation Test guinea pig Did not cause sensitization on laboratory animals	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.6.	5.
Repeated dose toxicity		
Poly(3,4-	: rat Oral	
ethylenedioxythiophene)-	Exposure time: 28-day	
poly(styrenesulfonate)	NOEL: 272 mg/kg Method: Directive 67/548/EEC, Annex V, B.7.	
Genotoxicity in vitro	· Amon toot	
Poly(3,4- ethylenedioxythiophene)-	: Ames test Salmonella typhimurium	
poly(styrenesulfonate)	No indication of mutagenic effects.	
poly(oryronoodiionato)	Method: Directive 67/548/EEC, Annex V, B.14.	
	Chromosome aberration test in vitro	
	Chinese Hamster V79 cells	
	No indication of mutagenic effects.	
	Method: No information available.	
2. ECOLOGICAL INFORMATI For risk assessment data of re Toxicity to fish Poly(3,4- ethylenedioxythiophene)-		
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, C.1.	
Toxicity to daphnia and othe		
Poly(3,4- ethylenedioxythiophene)-	: Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, C.2.	
Toxicity to algae		
Poly(3,4-	: Desmodesmus subspicatus	
ethylenedioxythiophene)- poly(styrenesulfonate)	72 h ErC50 54 mg/l Method: Directive 67/548/EEC, Annex V, C.3.	
Biodegradability		
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CLEVIOS™ PH 500		
Version 2.0	Revision Date 08.04.2008 Print Date 07.	05.200
Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Not readily biodegradable.	
13. DISPOSAL CONSIDERATION	NS	
Product	 The Federal, regional and local rules and regulations governing disposal must be complied with. This product is cannot be classified with disposal identification key acc. to the EU disposal directives as a classification results from the intended utilisation purpose of the consumer 	
Packaging	: Packaging that is not contaminated and has been cleaned can be recycled.	
14. TRANSPORT INFORMATION	N	
Land transport ADR/RID Not dangerous goods		
Air transport ICAO-TI/IATA-DG Not dangerous goods	BR	
Sea transport IMDG Not dangerous goods		
15. REGULATORY INFORMATIC	DN	
Labelling according to EC I	Directives	
Directive 1999/45/EC		
No labelling required		
National legislation		
National legislation Major Accident Hazard Legislation	: 96/82/EC Annex I Number: Is not subject to the Seveso II Directive.	
Major Accident Hazard Legislation	Annex I	
Major Accident Hazard Legislation 16. OTHER INFORMATION Full text of R-phrases refer	Annex I Number: Is not subject to the Seveso II Directive.	
Major Accident Hazard Legislation 16. OTHER INFORMATION Full text of R-phrases refer	Annex I Number: Is not subject to the Seveso II Directive.	
Major Accident Hazard Legislation 16. OTHER INFORMATION Full text of R-phrases referr R41 Risk	Annex I Number: Is not subject to the Seveso II Directive.	



CLEVIOS[™] PH 500

Version 2.0

Revision Date 08.04.2008

Print Date 07.05.2008

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Changes since the last version are highlighted in the margin. This version replaces all previous versions.



CLEVIOS[™] P AP.AI 4083

Version 2.0

000010001593

Revision Date 08.04.2008

Print Date 04.06.2008

SDB_GB (EN)

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING **Product information** : CLEVIOS™ P AP.AI 4083 Trade name Use of the Optical-Industry 5 Substance/Preparation Company : H. C. Starck GmbH Im Schleeke 78-91 38642 Goslar / Germany **Responsible Department** : Central Support Services - Product Safety Telephone +49(0)5321/751-0 5 E-mail address infoSDS@hcstarck.com : Emergency telephone : +49(0)5321/751-0 2. HAZARDS IDENTIFICATION Classification No classification 3. COMPOSITION/INFORMATION ON INGREDIENTS **Chemical nature** Aqueous solution Hazardous components **Chemical Name** CAS-No. EC-No. Symbol(s) Concentration R-phrase(s) [%] Poly(3,4-155090-83-8 424-490-4 R41 Xi <= 1.3 ethylenedioxythiophene)poly(styrenesulfonate) For the full text of the R-phrases mentioned in this Section, see Section 16. 4. FIRST AID MEASURES If inhaled : Remove to fresh air. If symptoms persist, call a physician. In case of skin contact : Wash off with soap and water. In the case of skin irritation or allergic reactions see a physician. In case of eye contact : Rinse with plenty of water. If eye irritation persists, consult a specialist. : Clean mouth with water and drink afterwards plenty of water. If swallowed Obtain medical attention.

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CLEVIOS™ P AP.AI 4083

Version 2.0	Revision Date 08.04.2008	Print Date 04.06.200	
5. FIRE-FIGHTING MEASURES			
Suitable extinguishing media	Not combustible. Extinguishing methods depends upon fire in vicinity poses.		
Extinguishing media which shall not be used for safety reasons	None known.		
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	: None known.		
Special protective equipment for fire-fighters	: No special protective equipment require	:d.	
Additional advice	: None known.		
6. ACCIDENTAL RELEASE MEA	SURES		
Personal precautions	: Ventilate the area. Use personal protective equipment.		
Environmental precautions	: Do not flush into surface water or sanita	ıry sewer system.	
Methods for cleaning up	: Soak up with inert absorbent material (e binder, universal binder, sawdust). Fill into labelled, sealable containers.	e.g. sand, silica gel, acid	
7. HANDLING AND STORAGE			
Handling			
Advice on protection against fire and explosion	: No special precautions required.		
Storage			
Requirements for storage areas and containers	: Comply with the directives governing wa	ater law	
Further information on storage conditions	: Store in original container.		
B. EXPOSURE CONTROLS/PER	SONAL PROTECTION		
Exposure Limit Values			
Poly(3,4-ethylenedioxythiophe	ne)-poly(styrenesulfonate); CAS-No.: 155	090-83-8	
Basis	: EH40 (UK)		
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CLEVIOS™ P AP.AI 4083

Version 2.0		Revision Date 08.04.2008	Print Date 04.06.2008		
Note	:	No limit value established.			
Personal protective equipment					
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change the gloves immediately and remove them according to relevant national and local regulations.			
Eye protection	:	Safety glasses			
Body Protection	:	Do not get on skin or clothing.			
General protective measures	:	Handle in accordance with good industrial hygie practice.	ne and safety		

9. PHYSICAL AND CHEMICAL PROPERTIES

000010001593		3/6 SDB_GB (EN)
11. TOXICOLOGICAL INFORM	ATIC	
products		Formation of carbon dioxide (CO2) and carbon monoxide (CO) during thermal decomposition.
Hazardous decomposition	:	
Thermal decomposition	:	No decomposition up to 100 °C
Materials to avoid	:	None known.
Conditions to avoid	:	None known.
10. STABILITY AND REACTIVI	ΓY	
Solubility - Water solubility	:	completely miscible
Density	:	ca. 1 g/cm3 at 20 °C
Vapour pressure	:	at 20 °C
-	:	ca. 100 °C
Change in physical state		
рН	:	1.5 - 2.5
Safety data		
Odour	:	odourless
Colour	:	blue
Form	:	liquid
Appearance		



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sion 2.0	Revision Date 08.04.2008	Print Date 04.06.20
For risk assessment data of re	elevant ingredients:	
Acute oral toxicity		
Poly(3,4- ethylenedioxythiophene)-	: LD50 rat > 2,500 mg/kg Method: Directive 67/548/EEC Annex V, B.1.tris	
poly(styrenesulfonate)	Method. Directive 07/346/EEC Annex V, B.T.ths	
Skin irritation Poly(3,4-	: rabbit	
ethylenedioxythiophene)-	No skin irritation	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.4.	
Evo irritation		
Eye irritation Poly(3,4-	: rabbit	
ethylenedioxythiophene)-	Risk of serious damage to eyes.	
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.5.	
Sensitisation		
Poly(3,4-	: Maximisation Test guinea pig	
ethylenedioxythiophene)-	Did not cause sensitization on laboratory animal	S.
poly(styrenesulfonate)	Method: Directive 67/548/EEC, Annex V, B.6.	
Repeated dose toxicity		
Poly(3,4-	: rat Oral	
ethylenedioxythiophene)-	Exposure time: 28-day	
poly(styrenesulfonate)	NOEL: 272 mg/kg	
	Method: Directive 67/548/EEC, Annex V, B.7.	
Genotoxicity in vitro		
Poly(3,4-	: Ames test	
ethylenedioxythiophene)-	Salmonella typhimurium	
poly(styrenesulfonate)	No indication of mutagenic effects.	
	Method: Directive 67/548/EEC, Annex V, B.14.	
	Chromosome aberration test in vitro	
	Chinese Hamster V79 cells	
	No indication of mutagenic effects.	
	Method: No information available.	
ECOLOGICAL INFORMAT		
I ULIISK ASSESSILIETIL UALA ULIE		
Toxicity to fish Poly(3,4-	: Brachydanio rerio (zebra fish)	
Toxicity to fish		
Toxicity to fish Poly(3,4-	: Brachydanio rerio (zebra fish)	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1.	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)-	: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1.	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)-	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	
Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and othe Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	 Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. er aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	



CLEVIOS™ P AP.AI 4083					
Version 2.0	Revision Date 08.04.2008	Print Date 04.06.2008			
Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Not readily biodegradable.				
13. DISPOSAL CONSIDERATION	NS				
Product	: The Federal, regional and local rules and r disposal must be complied with. This product is cannot be classified with dis acc. to the EU disposal directives as a class intended utilisation purpose of the consume	sposal identification key sification results from the			
Packaging	: Packaging that is not contaminated and ha recycled.	is been cleaned can be			
14. TRANSPORT INFORMATION	1				
Land transport ADR/RID Not dangerous goods					
Air transport ICAO-TI/IATA-DG Not dangerous goods	iR				
Sea transport IMDG Not dangerous goods					
15. REGULATORY INFORMATIC)N				
Labelling according to EC Directives					
Directive 1999/45/EC					
No labelling required					
National legislation					
Major Accident Hazard Legislation	: 96/82/EC Annex I Number: Is not subject to the Seveso II Dir	ective.			
16. OTHER INFORMATION					
Full text of R-phrases refer	red to under sections 2 and 3				
R41 Risk	of serious damage to eyes.				
Further information					
000010001593	5/6	SDB_GB (EN)			
000010001000	510				



CLEVIOS[™] P AP.AI 4083

Version 2.0

Revision Date 08.04.2008

Print Date 04.06.2008

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The above details do not imply any guarantee concerning composition, properties or performance.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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LEVIOS™ P VPCH 800 /ersion 1.0		on Date 18.06	2008	Drin	t Date 11.11.2008
version 1.0	Revisi	On Date To.uc	0.2000	F1 11	
. IDENTIFICATION OF THE S	SUBSTANCE/P	REPARATIO	N AND OF T	HE COMPAN	//UNDERTAKING
Product information			200		
Trade name		S™ P VPCH 80	000		
Use of the Substance/Preparation	: Optical-I	Industry			
Company					
Telephone Responsible Department E-mail address Emergency telephone	: Corpora : infoSDS	321/751-0 te HSEQ & SIS @hcstarck.com 321/751-0		ety	
No classification					
No classification COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion	ION ON INGRE	edients			
COMPOSITION/INFORMAT	ION ON INGRE	EDIENTS			
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion	TON ON INGRE	EDIENTS EC-No.	Symbol(s)	R-phrase(s)	Concentration
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion Hazardous components			Symbol(s) Xi	R-phrase(s) R41	Concentration [%] <= 1.3
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion Hazardous components Chemical Name Poly(3,4- ethylenedioxythiophene)-	CAS-No. 155090-83-8	EC-No. 424-490-4	Xi	R41	[%] <= 1.3
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion Hazardous components Chemical Name Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	CAS-No. 155090-83-8	EC-No. 424-490-4	Xi	R41	[%] <= 1.3
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion Hazardous components Chemical Name Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) For the full text of the	CAS-No. 155090-83-8 R-phrases m : Remove	EC-No. 424-490-4	xi this Sectio	R41	[%] <= 1.3
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion Hazardous components Chemical Name Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) For the full text of the FIRST AID MEASURES	CAS-No. 155090-83-8 R-phrases m : Remove If sympto : Wash off	EC-No. 424-490-4 tentioned in to fresh air. to fresh air. to spersist, call	Xi this Sectio a physician. water.	R41	[%] <= 1.3 on 16.
COMPOSITION/INFORMAT Chemical nature Aqueous polymer dispersion Hazardous components Chemical Name Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) For the full text of the FIRST AID MEASURES If inhaled	CAS-No. 155090-83-8 R-phrases m : Remove If sympto : Wash off In the ca : Rinse wi	EC-No. 424-490-4 tentioned in to fresh air. to fresh air. to spersist, call	xi this Sectio a physician. water. ion or allergic r er.	R41 n, see Secti eactions see a p	[%] <= 1.3 on 16.

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CLEVIOS™ P VPCH 8000

Version 1.0

Revision Date 18.06.2008

Print Date 11.11.2008

. FIRE-FIGHTING MEASURES		
Suitable extinguishing media	:	Not combustible. Extinguishing methods depends upon fire in vicinity poses.
Extinguishing media which shall not be used for safety reasons	;	None known.
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	:	None known.
Special protective equipment for fire-fighters	:	No special protective equipment required.
Additional advice	:	None known.
. ACCIDENTAL RELEASE MEA	su	IRES
Personal precautions	:	Ventilate the area. Use personal protective equipment.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system.
Methods for cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Fill into labelled, sealable containers.
. HANDLING AND STORAGE		
Handling		
Advice on protection against fire and explosion	:	No special precautions required.
Storage		
Requirements for storage areas and containers	:	Comply with the directives governing water law
Further information on storage conditions	:	Store in original container.
. EXPOSURE CONTROLS/PER	so	NAL PROTECTION
		4
Personal protective equipn	ien	t

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Version 1.0		Revision Date 18.06.2008	Print Date 11.11.20
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change remove them according to relevant nation	
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
. PHYSICAL AND CHEMICAL	. PRC	PERTIES	
Appearance			
Form	:	liquid	
Color	:	blue	
Odor	:	odorless	
Safety data			
рН	:	1 - 2	
Change in physical state			
-	:	approx. 100 °C	
Vapour pressure	:	< 110.00 hPa at 50 °C	
Density	:	approx. 1 g/cm3 at 20 °C	
Solubility			
- Water solubility	1	completely miscible	
0. STABILITY AND REACTIVI	TY		
Conditions to avoid	:	None known.	
Materials to avoid	:	None known.	
Thermal decomposition	:	No decomposition up to 100 °C	
Hazardous decomposition products	:	No decomposition if stored normally. Formation of carbon dioxide (CO2) and o thermal decomposition.	carbon monoxide (CO) during
1. TOXICOLOGICAL INFORM)N	
For risk assessment data of re			
Acute oral toxicity		-	
Acute of al toxicity			

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rsion 1.0	Revision Date 18.06.2008 Print Date 11.11.	.20
Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: LD50 rat > 2,500 mg/kg Method: Directive 67/548/EEC Annex V, B.1.tris.	
Skin irritation Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: rabbit No skin irritation Method: Directive 67/548/EEC, Annex V, B.4.	
Eye irritation Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: rabbit Risk of serious damage to eyes. Method: Directive 67/548/EEC, Annex V, B.5.	
Sensitization Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Maximization Test guinea pig Did not cause sensitization on laboratory animals. Method: Directive 67/548/EEC, Annex V, B.6.	
Genotoxicity in vitro Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate)	: Ames test Salmonella typhimurium No indication of mutagenic effects. Method: Directive 67/548/EEC, Annex V, B.14.	
	Chromosome aberration test in vitro Chinese Hamster V79 cells No indication of mutagenic effects. Method: No information available.	
ECOLOGICAL INFORMATION	N	
For risk assessment data of relev Toxicity to fish Poly(3,4-	vant ingredients: : Brachydanio rerio (zebra fish)	
For risk assessment data of relev Toxicity to fish	vant ingredients:	
For risk assessment data of relev Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and other a Poly(3,4- ethylenedioxythiophene)-	 vant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l 	
For risk assessment data of relevent Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and other a Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)-	 vant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/i Method: Directive 67/548/EEC, Annex V, C.1. aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/l 	
For risk assessment data of relevent Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and other a Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4-	 vant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.1. aquatic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/l Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 	
For risk assessment data of relev Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and other a Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)-	 Pant ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/i Method: Directive 67/548/EEC, Annex V, C.1. Autic invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/i Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/i Method: Directive 67/548/EEC, Annex V, C.3. Not readily biodegradable. 	
For risk assessment data of relevent Toxicity to fish Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to daphnia and other a Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Toxicity to algae Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) Biodegradability Poly(3,4- ethylenedioxythiophene)- poly(styrenesulfonate) DISPOSAL CONSIDERATION	 Part ingredients: Brachydanio rerio (zebra fish) 96 h NOEC >= 100 mg/i Method: Directive 67/548/EEC, Annex V, C.1. Autor invertebrates. Daphnia magna (Water flea) 48 h NOEC >= 100 mg/i Method: Directive 67/548/EEC, Annex V, C.2. Desmodesmus subspicatus 72 h ErC50 54 mg/i Method: Directive 67/548/EEC, Annex V, C.3. Not readily biodegradable. 	

	= I according to	o Regulation (EU) No. 1907/2006	H.C.Starck
CLEVIOS™ P VP	CH 8000		
Version 1.0		Revision Date 18.06.2008	Print Date 11.11.2008
Packaging	:	Packaging that is not contaminated a recycled.	and has been cleaned can be
14. TRANSPORT INF	ORMATION		
Land transport AE Not dangerous goo			
Air transport ICAC Not dangerous goo		-	
Sea transport IMD Not dangerous goo	G ds		
15. REGULATORY IN	FORMATION		
Labelling accord	ling to EC Dire	ectives	
Directive 1999/45/i	EC		
No labelling require	d		
I6. OTHER INFORMA Full text of R-phi R41	rases referred	to under sections 2 and 3 serious damage to eyes.	
	iam		
Further information The information pro- belief at the date of use, processing, sto quality specification such material used	vided in this Safe its publication. T orage, transporta . The information in combination w	ety Data Sheet is correct to the best of The information given is designed only ation, disposal and release and is not to n relates only to the specific material do with any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, be considered a warranty or esignated and may not be valid for ess, unless specified in the text.
Further information The information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do with any other materials or in any proce	as a guidance for safe handling, b be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, o be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information The information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, b be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information The information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, b be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information The information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, b be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information The information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, b be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, b be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.
Further information The information pro- belief at the date of use, processing, sto quality specification such material used The above details d	vided in this Safe its publication. T orage, transporta . The information in combination w o not imply any g	The information given is designed only ation, disposal and release and is not to n relates only to the specific material do vith any other materials or in any proce guarantee concerning composition, pro	as a guidance for safe handling, o be considered a warranty or esignated and may not be valid for ess, unless specified in the text. operties or performance.

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RD CLEVIOS[™] S HT

Version 1.0

Revision Date 30.04.2008

Print Date 04.06.2008

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING **Product information** Trade name : RD CLEVIOS™ S HT Use of the Electrical Industry and Electronics : Substance/Preparation Company : H.C. Starck GmbH Im Schleeke 78 - 91 38642 Goslar Germany Telephone +49(0)5321/751-0 : **Responsible Department** Corporate HSEQ & SIS - Product Safety : E-mail address infoSDS@hcstarck.com : Emergency telephone : +49(0)5321/751-0 2. HAZARDS IDENTIFICATION Classification No classification **3. COMPOSITION/INFORMATION ON INGREDIENTS Chemical nature** Preparation Hazardous components **Chemical Name** CAS-No. EC-No. Symbol(s) R-phrase(s) Concentration [%] 2,2'-Oxydiethanol 111-46-6 203-872-2 Xn R22 <= 15 Propane-1,2-diol 57-55-6 200-338-0 70 1-Octanol 111-87-5 203-917-6 Xi R36 <= 1 For the full text of the R-phrases mentioned in this Section, see Section 16. **4. FIRST AID MEASURES** If inhaled : Remove to fresh air. In case of skin contact : Wash off immediately with soap and plenty of water. In case of eye contact : Rinse with plenty of water. If eye irritation persists, consult a specialist. If swallowed : Clean mouth with water and drink afterwards plenty of water. Obtain medical attention. 000010003945 1/5 SDB_GB (EN)



RD CLEVIOS™ S HT

Version 1.0		Revision Date 30.04.2008	Print Date 04.06.2008
5. FIRE-FIGHTING MEASURES			
Suitable extinguishing media	:	Not combustible. Extinguishing methods depends upon fi	re in vicinity poses.
Extinguishing media which shall not be used for safety reasons	:	None known.	
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	:	In case of fire may be formed: Carbon monoxide - Extremely flammabl Carbon Dioxide - Gas is heavier than air concentrations.	
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained	breathing apparatus.
Additional advice	:	Prevent fire extinguishing water from co the ground water system.	ntaminating surface water or
6. ACCIDENTAL RELEASE MEA	SU	IRES	
Personal precautions	:	Ventilate the area. Use personal protective equipment.	
Environmental precautions	:	Do not flush into surface water or sanita	ry sewer system.
Methods for cleaning up	:	Soak up with inert absorbent material (e binder, universal binder, sawdust). Fill into labelled, sealable containers.	.g. sand, silica gel, acid
7. HANDLING AND STORAGE			
Handling			
Advice on protection against fire and explosion	:	No special precautions required.	
Storage			
Requirements for storage areas and containers	:	Comply with the directives governing wa	ater law
Further information on storage conditions	:	Store in original container. Keep containers tightly closed in a dry, o	cool and well-ventilated place.
8. EXPOSURE CONTROLS/PER	SO	NAL PROTECTION	
Exposure Limit Values			
2,2'-Oxydiethanol; CAS-No.: 1	11-4	46-6	



RD CLEVIOS™ S HT

		Revision Date 30.04.2008	Print Date 04.06.200
Basis Threshold limits	:	EH40 (UK)	
TWA	:	101 mg/m3 23 ppm	
Propane-1,2-diol, Total Vapour	r Ar	d Particulates; CAS-No.: 57-55-6	
Basis Threshold limits	:	EH40 (UK)	
TWA	:	474 mg/m3 150 ppm	
1-Octanol; CAS-No.: 111-87-5			
Basis Thread a let limite	:	TRGS 900	
Threshold limits	:	106 mg/m3	
Ceiling limit		20 ml/m3 1(l)	
Note	:	AGS	
2,2'-Oxydiethanol; CAS-No.: 1	11-4	6-6	
Basis Note	÷	OEL (EU) No limit value established.	
	•		
	r An	d Particulates; CAS-No.: 57-55-6	
Basis Note	:	OEL (EU) No limit value established.	
Personal protective equipm	nen	t	
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change the remove them according to relevant national	
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
General protective measures	:	Handle in accordance with good industrial h practice. Wash hands before breaks and im the product.	
PHYSICAL AND CHEMICAL P Appearance	RO		
Form	:	paste	
Colour	:	blue	
0 1	:	very faint	
Odour			
Safety data			
	:	ca. 1.5 at 20 °C	
Safety data	:		



RD CLEVIOS™ S HT

RD CLEVIOS™ S HT			
Version 1.0		Revision Date 30.04.2008	Print Date 04.06.2008
- Boiling point/boilingrange	:	ca. 100 °C	
Density	:	1.058 g/cm3 at 20 °C	
Viscosity			
- Viscosity, dynamic	:	2,000 mPa.s at 20 °C	
10. STABILITY AND REACTIVITY	1		
Conditions to avoid	:	None known.	
Materials to avoid	:	None known.	
Thermal decomposition	:	not applicable	
Hazardous decomposition products	:	No hazardous decomposition products are	known.
11. TOXICOLOGICAL INFORMAT			
12. ECOLOGICAL INFORMATION		ble.	
13. DISPOSAL CONSIDERATION	IS		
Product	:	The Federal, regional and local rules and red disposal must be complied with. This product is cannot be classified with dis acc. to the EU disposal directives as a class intended utilisation purpose of the consume	sposal identification key sification results from the
Packaging	:	Packaging that is not contaminated and has recycled.	s been cleaned can be
14. TRANSPORT INFORMATION			
Land transport ADR/RID Not dangerous goods			
Air transport ICAO-TI/IATA-DG Not dangerous goods	R		
Sea transport IMDG Not dangerous goods			
000010003945		4/5	SDB_GB (EN)



RD CLEVIOS[™] S HT

Version 1.0

Revision Date 30.04.2008

Print Date 04.06.2008

15. REGULATORY INFORMATION

Labelling according to EC Directives Directive 1999/45/EC

No labelling required

16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3

R22Harmful if swallowed.R36Irritating to eyes.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The above details do not imply any guarantee concerning composition, properties or performance.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.



CLEVIOS[™] S V3

Version 1.0

Revision Date 29.04.2008

Print Date 04.06.2008

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING **Product information** Trade name : CLEVIOS™ S V3 Use of the : Electrical Industry and Electronics Substance/Preparation Company : H.C. Starck GmbH Im Schleeke 78 - 91 38642 Goslar Germany Telephone +49(0)5321/751-0 : Responsible Department Corporate HSEQ & SIS - Product Safety : E-mail address infoSDS@hcstarck.com : **Emergency telephone** +49(0)5321/751-0 : 2. HAZARDS IDENTIFICATION Classification No classification **3. COMPOSITION/INFORMATION ON INGREDIENTS Chemical nature** Preparation Hazardous components **Chemical Name** Concentration CAS-No. EC-No. Symbol(s) R-phrase(s) [%] Propane-1,2-diol 57-55-6 200-338-0 65.6 2,2'-Oxydiethanol 111-46-6 203-872-2 Xn R22 <= 15 Poly(3,4-155090-83-8 424-490-4 Xi R41 1.1 ethylenedioxythiophene)poly(styrenesulfonate) For the full text of the R-phrases mentioned in this Section, see Section 16. 4. FIRST AID MEASURES

If inhaled	:	Remove to fresh air.	
In case of skin contact	:	Wash off immediately with soap and plenty of water.	
In case of eye contact	:	Rinse with plenty of water. If eye irritation persists, consult a specialist.	
If swallowed	:	Clean mouth with water and drink afterwards plenty of wa Obtain medical attention.	ter.
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CLEVIOS[™] S V3 Version 1.0 Revision Date 29.04.2008 Print Date 04.06.2008 **5. FIRE-FIGHTING MEASURES** : Not combustible. Suitable extinguishing media Extinguishing methods depends upon fire in vicinity poses. Extinguishing media which : None known. shall not be used for safety reasons Special exposure hazards : In case of fire may be formed: arising from the substance Carbon monoxide - Extremely flammable, Toxic or preparation itself, Carbon Dioxide - Gas is heavier than air. Act as an asphyxiant at high combustion products, concentrations resulting gases sulfuric oxides (SOx) - Toxic, Corrosive Special protective : In the event of fire, wear self-contained breathing apparatus. equipment for fire-fighters Additional advice : Prevent fire extinguishing water from contaminating surface water or the ground water system. 6. ACCIDENTAL RELEASE MEASURES : Ventilate the area. **Personal precautions** Use personal protective equipment. **Environmental precautions** : Do not flush into surface water or sanitary sewer system. Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid : binder, universal binder, sawdust). Fill into labelled, sealable containers. 7. HANDLING AND STORAGE Handling Advice on protection against : No special precautions required. fire and explosion Storage Requirements for storage : Comply with the directives governing water law areas and containers Further information on : Store in original container. storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place. 8. EXPOSURE CONTROLS/PERSONAL PROTECTION **Exposure Limit Values** Propane-1,2-diol, Total Vapour And Particulates; CAS-No.: 57-55-6

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Basis Threshold limits TWA		EH40 (UK) 474 mg/m3	
		150 ppm	
2,2'-Oxydiethanol; CAS-No.: 1	11-4	46-6	
Basis Threshold limits	:	EH40 (UK)	
TWA	:	101 mg/m3 23 ppm	
Poly(3,4-ethylenedioxythiophe	ne)-poly(styrenesulfonate); CAS-No.: 15509	0-83-8
Basis Note	:	EH40 (UK) No limit value established.	
Propane-1,2-diol, Total Vapour	· Aı	nd Particulates; CAS-No.: 57-55-6	
Basis Note	:	OEL (EU) No limit value established.	
2,2'-Oxydiethanol; CAS-No.: 1	11-	46-6	
Basis Note	:	OEL (EU) No limit value established.	
Poly(3,4-ethylenedioxythiophe	ne)-poly(styrenesulfonate); CAS-No.: 15509	0-83-8
Basis Note	:	OEL (EU) No limit value established.	
Personal protective equipm	ien	t	
Respiratory protection	:	Respiratory protection when aerosols and protective device with particle filter EN 143	
Hand protection	:	Glove material: Butyl-rubber, Viton After contamination with product change th remove them according to relevant nationa	
Eye protection	:	Safety glasses	
Body Protection	:	Do not get on skin or clothing.	
General protective measures	:	Handle in accordance with good industrial practice. Wash hands before breaks and in the product.	
PHYSICAL AND CHEMICAL P	RC	OPERTIES	
Appearance			
Form	:	paste	
Colour	:	blue	
Odour	:	slight	
Safety data			
	_	0.0	
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Biodegradability	:	no data available	
other aquatic invertebrates. Toxicity to algae	:	no data available	
Toxicity to daphnia and	:	no data available	
Toxicity to fish	:	no data available	
For risk assessment data of rele	van	t ingredients:	
12. ECOLOGICAL INFORMATIO	N		
Genotoxicity in vitro	:	no data available	
Sensitisation	:	no data available	
Eye irritation	:	no data available	
Skin irritation	:	no data available	
Acute oral toxicity	:	no data available	
For risk assessment data of rele	van	t ingredients:	
11. TOXICOLOGICAL INFORMA	тіс	N	
Hazardous decomposition products	:	No hazardous decomposition products are known	l.
Thermal decomposition	:	no data available	
Materials to avoid	:	None known.	
Conditions to avoid	:	None known.	
10. STABILITY AND REACTIVIT	Y		
- Viscosity, dynamic	:	ca. 2,000 mPa.s at 20 °C	
Viscosity			
Solubility - Water solubility	:	completely miscible	
		at 20 °C	
- Bolling point/bollingrange	:	ca. 1.06 g/cm3	
Change in physical state - Boiling point/boilingrange		ca. 105 °C	
рН	:	1.5 at 20 °C	
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3. DISPOSAL CONSIDERATIO	DNS	
Product	: The Federal, regional and local rules and disposal must be complied with.	d regulations governing
	: This product is cannot be classified with acc. to the EU disposal directives as a cl intended utilisation purpose of the consu	assification results from the
Packaging	 Packaging that is not contaminated and recycled. 	has been cleaned can be
4. TRANSPORT INFORMATIO	DN	
Land transport ADR/RID Not dangerous goods		
Air transport ICAO-TI/IATA-D Not dangerous goods	OGR	
Sea transport IMDG Not dangerous goods		
-		
5. REGULATORY INFORMAT		
15. REGULATORY INFORMATI		
5. REGULATORY INFORMAT Labelling according to EC Directive 1999/45/EC		
15. REGULATORY INFORMATI		
5. REGULATORY INFORMAT Labelling according to EC Directive 1999/45/EC		
15. REGULATORY INFORMATI Labelling according to EC Directive 1999/45/EC No labelling required		Directive.
15. REGULATORY INFORMATI Labelling according to EC Directive 1999/45/EC No labelling required National legislation Major Accident Hazard	: 96/82/EC Annex I	Directive.
15. REGULATORY INFORMATI Labelling according to EC Directive 1999/45/EC No labelling required National legislation Major Accident Hazard Legislation	: 96/82/EC Annex I	Directive.
 IS. REGULATORY INFORMATION Labelling according to EC Directive 1999/45/EC No labelling required National legislation Major Accident Hazard Legislation IG. OTHER INFORMATION Full text of R-phrases reference R22 	: 96/82/EC Annex I Number: Is not subject to the Seveso II I	Directive.
15. REGULATORY INFORMATI Labelling according to EC Directive 1999/45/EC No labelling required National legislation Major Accident Hazard Legislation	: 96/82/EC Annex I Number: Is not subject to the Seveso II I	Directive.
15. REGULATORY INFORMATI Labelling according to EC Directive 1999/45/EC No labelling required National legislation Major Accident Hazard Legislation Major Accident Hazard Legislation Full text of R-phrases refe R22 Hai R41 Ris	: 96/82/EC Annex I Number: Is not subject to the Seveso II I	Directive.



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Changes since the last version are highlighted in the margin. This version replaces all previous versions.