CERECLOR™ E40 / E40C / E45 / E45C / E50 / E56 / E58 / E60

ACCORDING TO US CFR 1910.1200

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name	CERECLOR™ E40 / E40C / E45 / E45C / E50 / E56 / E58 / E60
Alternative names	Medium-chain chlorinated paraffins/alkanes, C14-C17, chloro; Alkanes, C14-17, chloro; C14-17 chlorinated paraffin (chlorination: 40 - 60%)
CAS No.	85535-85-9

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

Identified Use(s)	lubricants and lubricant additives, anti-set off and adhesive agent, flame retardant, plasticiser in polyvinyl chloride and in paints, extreme pressure additives (metal cutting/working fluids), softeners . For details on specific grades please refer to technical literature.
Uses Advised Against	As a plasticiser in products for childrens' toys and food contact applications.

1.3 Details of the supplier of the safety data sheet

Company Identification	INOVYN Americas Inc.
Address of Supplier	21255A LA Hwy 1 South Block 5501 Plaquemine LA 70764 United States
Zip code	70764
Telephone:	(+1) (866) 296-0146
E-mail	sds.ocd@inovyn.com

1.4 Emergency telephone number

Emergency Phone No.	+1 866 928 0789

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

US CFR 1910.1200	* Aquatic Acute 1 :Very toxic to aquatic life. * Aquatic Chronic 1 :Very toxic to aquatic life with long lasting effects. * Note: For shipments within the US, it is not mandatory to provide an environmental classification

2.2 Label elements

	US CFR 1910.1200
Product Name	CERECLOR™ E40 / E40C / E45 / E45C / E50 / E56 / E58 / E60

Hazard Pictogram(s)

* GHS09

*Note: For shipments within the US, it is not mandatory to display the environmental hazard pictogram on the label.

Signal Word(s)

* Warning

*Note: For shipments within the US, it is not mandatory to display the Warning signal word on the label if no environmental classification is going to be applied.

Hazard Statement(s)

* H410: Very toxic to aquatic life with long lasting effects.

* Note: For shipments within the US, it is not mandatory to display the environmental hazard statement H410 on the label.

Precautionary Statement(s)

P260: Do not breathe mist/vapors/spray.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P391: Collect spillage.
P501: Dispose of contents/container to: An approved recycle or waste disposal facility.

Additional label requirements

None.

2.3 Other hazards

This product does not contain any of the PBT substance, short-chain chlorinated paraffins (CAS No 061788-76-9).

2.4 Additional Information

Note: in the EU it is mandatory to include the following classification:
H362: May cause harm to breast-fed children.
P263: Avoid contact during pregnancy and while nursing.
EUH066: Repeated exposure may cause skin dryness or cracking.

For full text of H/P Statements see section 16.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

HAZARDOUS INGREDIENT(S)	CAS No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Alkanes, C14-17, chloro	85535-85-9	>99	Lact. H362 (EU only) Aquatic Acute 1 H400 Aquatic Chronic 1 H410	GHS09

3.2 Mixtures

Not applicable.

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Remove patient from exposure, keep warm and at rest.
Skin Contact	Remove contaminated clothing. Wash skin with soap and water.
Eye Contact	Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain medical attention.
Ingestion	Do not induce vomiting. Wash out mouth with water and give 200-300 ml (half a pint) of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

If skin irritation or rash occurs: Get medical advice/attention.

4.3 Indication of any immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice/attention. Treat symptomatically.

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media	Normal extinguishing media. Water spray, dry powder or carbon dioxide.
Unsuitable Extinguishing Media	None.

5.2 Special hazards arising from the substance or mixture

Prolonged heating at temperatures in excess of 70 Deg C (158 F) or heating above 200 Deg C (390 F) for short periods of time will result in decomposition and liberation of hydrogen chloride.

5.3 Advice for firefighters

A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear suitable gloves and eye/face protection.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Caution - spillages may be slippery. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal or recovery.

6.4 Reference to other sections

See Also Section 8, 13.

6.5 Additional Information

Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Provide adequate ventilation where operational procedures demand it. Do not allow to enter drains, sewers or watercourses.

7.2 Conditions for safe storage, including any incompatibilities

Keep container dry. Keep away from direct sunlight.
Keep only in original container at temperatures not exceeding 40 Deg C (104 F).
Storage vessels should be made of lined mild steel in accordance with the advice given in CERECLOR™ Bulk Storage and Handling brochure. Total storage life at recommended conditions: 2 years if stored in accordance with advice given above.

Storage temperature	Ambient.
Storage life	Stable under normal conditions.
Incompatible materials	Strong oxidizing agents.

7.3 Specific end use(s)

See Section: 1.2

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits: No Occupational Exposure Limit assigned.

8.2 Exposure controls

8.2.1. Appropriate engineering controls: Provide adequate ventilation where operational procedures demand it. Use appropriate containment to avoid environmental contamination.

8.2.2. Personal protection equipment

Eye Protection: Wear protective eye glasses for protection against liquid splashes.

Skin protection: Good working practice suggests gloves and goggles should be worn. The following materials are suitable for protective gloves (permeation time >= 8 hours): Nitrile rubber.
Check with protective equipment manufacturer's data.

Respiratory protection: Wear suitable respiratory protective equipment if exposure to mist is likely. A suitable dust mask or dust respirator with filter type P (EN143 or EN405) may be appropriate.
Check with protective equipment manufacturer's data.

Thermal hazards: Not applicable.

8.2.3. Environmental Exposure Controls: Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Liquid. Color : Colorless.
Odor	Slight.
Odor Threshold	Not known.
pH	Not applicable.
Melting Point/Freezing Point	Not known.
Initial boiling point and boiling range	> 390 °F (>200 °C) (Decomposes below boiling point.)
Flash Point	392 °F (200 °C) @ 1013 hPa
Evaporation Rate	Not known.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Non-flammable.
Vapor pressure	practically non-volatile. 0.00027 Pa @ 68 °F (20°C)
Vapor density	Not known.
Density (g/ml)	1.10-1.38 @ 77 °F (25°C)
Relative density	Not known.
Solubility(ies)	Solubility (Water) : Practically insoluble. 0.027 mg/l @ 68 °F (20°C) Solubility (Other) : Soluble in most aromatic hydrocarbons, chlorinated solvents, esters and ketones.
Partition coefficient: n-octanol/water	Log Kow (Pow): 7 @ 68 °F (20°C)
Auto-ignition temperature	Not known.
Decomposition Temperature (°C)	~ 392 °F (~200 °C)
Viscosity	25 – 1200 mm^2/s @ 104°F (40°C)
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

9.2 Other information

Pour Point (°C)	-40 °F to 68°F (-40°C to +20°C)

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Non-reactive .

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Can react with alkali metals and alkaline earth metals which have a strong affinity for chlorine. Can react with iron, zinc and aluminum at high temperatures leading to decomposition.

10.4 Conditions to avoid

Heat and direct sunlight. Prolonged heating at temperatures in excess of 70 Deg C (158 F) or heating above 200 Deg C (390 F) for short periods of time will result in decomposition and liberation of hydrogen chloride.
Chlorinated paraffins tend to soften or swell most rubbers.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Thermal decomposition will evolve: Hydrogen chloride .

11. SECTION 11: TOXICOLOGICAL INFORMATION

This health hazard assessment is based on information available on similar products.

11.1 Information on toxicological effects

Acute toxicity - Ingestion	Not classified. Low oral toxicity. LD50 (rat) : >2000 mg/kg bw
Acute toxicity - Skin Contact	Not classified. Anticipated to have low dermal toxicity. The acute dermal LD50 of a C10-13 chlorinated paraffin (52% chlorinated) in rats and a C12 chlorinated paraffin (59% chlorinated) in rabbits is >2g/kg bw.
Acute toxicity - Inhalation	Not classified. Unlikely to be hazardous by inhalation. No deaths were seen in acute inhalation studies in rats exposed to air containing a C12 chlorinated paraffin (59% chlorination) at 3.3 mg/l or a 50% chlorinated short chain chlorinated paraffin (unspecified chain length) at 48 mg/l for 1 hr.
Skin corrosion/irritation	Not classified. Repeated exposure may cause skin dryness or cracking. Slight skin irritation reported in two studies conducted according to OECD Guideline 404 using undilute C14-17 chlorinated paraffins (40 & 52% chlorination - containing 1% epoxy stabiliser).
Serious eye damage/irritation	Not classified. Slight eye irritation reported in two studies conducted according to OECD Guideline 405 using undilute C14-17 chlorinated paraffins (40 & 52% chlorination - containing 1% epoxy stabiliser).
Skin sensitization data	Not classified. It is not a skin sensitizer in animal tests.
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	Not classified. Not mutagenic to bacteria or in in-vivo mouse bone marrow micronucleus assays.
Carcinogenicity	Not classified. MCCPs have not been tested for carcinogenicity. Chlorinated paraffins, as a group of chemicals are not genotoxic. Their lack of

	genotoxic activity together with the results of other studies leads us to conclude that chlorinated paraffins are unlikely to present a carcinogenic hazard to man under normal conditions of handling and use.
Reproductive toxicity	Not classified. No reported effects on fertility at doses up to 400 mg/kg/day. No effects in conventional development toxicity studies with doses up to 5000 mg/kg/day (rat) and 100 mg/kg/day (rabbit). Mortality due to internal haemorrhaging has been seen in newborn rats, reared by dams fed on high doses of a similar chlorinated paraffin.
Lactation	The EU has made the following classification mandatory in the EU even though this ruling has been challenged by Industry Toxicologist Experts: H362: May cause harm to breast-fed children. There is no such mandatory requirement in the USA.
STOT - single exposure	Not classified. Respiratory irritation : There are no reports relating to this endpoint despite the widspread use of this substance.
STOT - repeated exposure	Not classified. Repeated exposure to high levels may produce liver and kidney damage. Chronic ingestion studies in animals have shown that repeated doses of a representitive chlorinated paraffin (C14-17, 52% chlorine) gave no adverse effects at doses 23 mg/kg/day (90 day study). Slight effects on the liver were seen at doses >360 mg/kg/day. These effects occur after the administration of high oral doses of C14-C17 chlorinated paraffins to the female rat, a situation that would not arise under any reasonably forseeable circumstances of human exposure.
Aspiration hazard	Not an aspiration hazard .

11.2 Other information

Not known.

12. SECTION 12: ECOLOGICAL INFORMATION

A representative C14-17 chlorinated paraffin has been shown to be toxic to daphnia in laboratory studies. It showed a low level of toxicity to another aquatic invertebrate species (gammarus) and to fish and algae.

12.1 Toxicity

	Very toxic to aquatic life with long lasting effects. M-factor (Acute): 100 M-factor (Chronic): 10
Toxicity - Aquatic invertebrates	EC50 (48 hour) : 0.006 mg/l (Daphnia magna) Crustacean (Gammarus pulex) 96 hr - LC50 = >1.0 mg/l NOEC (21 days) : 0.01 mg/l (Daphnia magna) LOEC (21 days) : 0.018 mg/l (Daphnia magna) NOEC (60 Days) : 0.22 mg/l Crustacean (Mytilus edulis)
Toxicity - Fish	Alburnus alburnus (bleak) 96hr - LC50 = >5000 mg/l
Toxicity - Algae	EC50 (Biomass) (96 hour) : >3.2 mg/l (Selenastrum capricornutum)
Toxicity - Sediment Compartment	Not classified.
Toxicity - Terrestrial Compartment	Not classified.

12.2 Persistence and Degradation

Concentrations in the atmosphere are likely to be very small due to low volatility. Estimated atmospheric half life is 1 - 2 days.
Biodegredation in soil: Studies conducted on C14.5 & C15.4 (average C chain length) with 43.5% & 50% chlorination showed 57% and 51% degradation of the test substance after 36 hours.
Biodegradation in water and sediments: Simulation tests conducted on two C16 chlorinated paraffins (containing 35% Cl2 & 58% Cl2) gave a half-life (DT50) of 12 days and 58 days in freshwater sediment respectively.

12.3 Bioaccumulative potential

The product has potential for limited bioaccumulation.
Bioconcentration factor (BCF) : <2000 l/kg
Biomagnification factor (BMF) : <1

12.4 Mobility in soil

The product is predicted to have low mobility in soil.

12.5 Other adverse effects

Not known.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

This material and/or its container must be disposed of as hazardous waste. Do not discharge into drains or the environment, dispose to an authorized waste collection point.

13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

14. SECTION 14: TRANSPORT INFORMATION

14.1 UN number

UN No.	3082

14.2 UN proper shipping name

UN proper shipping name	
IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLORINATED PARAFFINS (C14-17))
DOT	CHLORINATED PARAFINS (C14-17), with less than 1% shorter chain length

14.3 Transport hazard class(es)

ADR/RID Class	9
IMDG Class	9
DOT Class	Not classified as dangerous for transport.
IMDG EMS	Not applicable
ICAO/IATA	
Excepted Quantities	E1

Passenger and Cargo Aircraft Limited Quantities Packing Instructions	Y964
Passenger and Cargo Aircraft Limited Quantities Max net Qty	30Kg
Passenger and Cargo Aircraft Packing Instructions	964
Passenger and Cargo Aircraft Max net Qty	450L
Cargo Aircraft Packing Instructions	964
Cargo Aircraft Max net Qty	450L
Special Provisions	A97, A158
Emergency Response Guidebook (ERG) Code	9L
ADR Classification Code	M6
ADR HIN	90
ADR Transport Category	3
Tunnel Restriction Code	E
Emergency Action Code	•3Z
APP Advice on Additional Personal Protection (APP)	Not applicable

14.4 Packing group

Packing group	III
DOT Packing group	Not classified as dangerous for transport.
Labels	9

Special Provisions	274 335 601
Limited Quantities	5 L
Excepted Quantities	E1
Mixed Packing Instructions for Packages	P001 IBC03 LP01 R001
Special Packing Provisions for Packages	PP1
Mixed Packing Instructions for Packages	MP19

14.5 Environmental hazards

Environmental hazards	
IMDG	Classified as a Marine Pollutant.
DOT	Not classified as a Marine Pollutant.

14.6 Special precautions for user

Special precautions for user	Not known.

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

Product Name	CHLORINATED PARAFFINS (C14-17)
Ship Type	1
Pollution Category	X
Packing Instructions for Portable Tanks	T4

Special Provisions for Portable Tanks	TP1 TP29
Tank Code for Tanks	LGBV
Special Provisions for Tanks	Not applicable
Vehicle for Tank Carriage	AT
Special Provisions for Carriage - Packages	V12
Special Provisions for Carriage - Bulk	Not applicable
Special Provisions for Carriage - Loading, Unloading and Handling	CV13
Special Provisions for Carriage - Operation	Not applicable

15. SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Toxic and hazardous substances (29 CFR 1910; Subpart Z)	Not listed
National emission standards for hazardous air pollutants (40 CFR 61.01)	Not listed
SARA Title III Section 313	Not listed
	SARA SECTIONS 311/312 (40CFR370.21):
	ACUTE: N
	CHRONIC: N
	FIRE: N
	REACTIVE: N
	SUDDEN RELEASE: N
	OSHA PROCESS SAFETY (29CFR1910.119): N
TSCA (Toxic Substance Control Act)	TSCA section 12(b) (40 CFR part 707, subpart D):
	Export Notification required.
	Notification name: Alkanes, C14-17, chloro
CAA 602 - Ozone Depleting Substances (ODS)	Not listed
CERCLA	Not listed

NFPA ratings:	Health 0, Flammability 0, Reactivity 0

15.2 US State Regulations

State Right to Know Lists	
Proposition 65 (California)	Not listed
Minnesota	Not listed
New Jersey	Not listed
Pennsylvania	Not listed
Rhode Island	Not listed

15.3 Other

OSPAR List of Chemicals for Priority Action	Not listed
OSHA (List of Highly Hazardous Chemicals, Toxics and Reactives)	Not listed
NTP (National Toxicology Program)	Not listed
IARC (International Agency for Research on Cancer)	Not listed

15.4 Inventory Status

Listed in: Australia (AICS), Canada (DSL/NDSL), China (IECSC), European Union (EINECS/ELINCS), Japan (ENCS), New Zealand Inventory (NZIoC), Philippines (PICCS), South Korea (KECI), Taiwan (NECI), Turkey.
Consent Order: United States (TSCA)

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 12.5, 15.1, 15.4

LEGEND

Hazard Pictogram(s)

GHS09

Hazard Statement(s)

H362: May cause harm to breast-fed children.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P201: Obtain special instructions before use.
P260: Do not breathe mist/vapors/spray.
P263: Avoid contact during pregnancy and while nursing.
P264: Wash hands and exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

	P308+P313: IF exposed or concerned: Get medical advice/attention. P391: Collect spillage. P501: Dispose of contents/container to: An approved recycle or waste disposal facility.
Acronyms	ADN : European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road CAS : Chemical Abstracts Service CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures DNEL : Derived No Effect Level DOT : Department Of Transport EC : European Community EINECS : European Inventory of Existing Commercial Chemical Substances IATA : International Air Transport Association IBC : Intermediate Bulk Container ICAO : International Civil Aviation Organization IMDG : International Maritime Dangerous Goods PBT : Persistent, Bioaccumulative and Toxic PNEC : Predicted No Effect Concentration REACH : Registration, Evaluation, Authorization and Restriction of Chemicals RID : Regulations concerning the International Carriage of Dangerous Goods by Rail STOT : Specific Target Organ Toxicity UN : United Nations vPvB : very Persistent and very Bioaccumulative
Key literature references	Chemical Safety Report, Medium-chain chlorinated paraffins/alkanes, C14-C17, chloro (13/9/2010) GESTIS - database on hazardous substances
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