**LORODAC/20-24**

Version: 3.00

Revision Date 24.05.2012

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

1.1 Product identifier

Trade name	LORODAC/20-24
Substance name (REACH / CLP)	Alcohols, C12-14 (even numbered), ethoxylated

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

Use	industrial use
Uses advised against	

1.3 Details of the supplier of the safety data sheet

Company	Sasol Italy S.p.A. Viale Forlanini, 23 20134 Milano Italy Telephone: +39 02 58453-1 Telefax: +39 02 58453-205
Information (Product safety):	Telephone: +39 02 58453-1 Telefax: +39 02 58453-315
E-mail:	msds-info.italy@it.sasol.com

1.4 Emergency telephone number

Emergency telephone number	+39 0931 988-290
----------------------------	------------------

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture**Classification (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

Classification (67/548/EEC, 1999/45/EC)

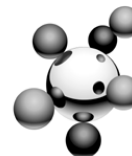
Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

2.2 Label elements

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3 Other hazardsDanger of slipping after spill or leakage.
Forms slippery/greasy layers with water.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**LORODAC/20-24**

Version: 3.00

Revision Date 24.05.2012

This product is a substance in the meaning of regulation (EC) 1907/2006.

CHEMICAL CHARACTERIZATIONAlcohols, C12-14, ethoxylated (≥ 20 EO)**component type:** Active ingredient**EC-No.:**
REACH No.: Not relevant (polymer)**Index-No.:****CAS-No.:** 68439-50-9**COMPONENTS TO BE NAMED IN ACCORDANCE WITH REGULATION (EC) 1907/2006 AS WELL AS OTHER HAZARDOUS INGREDIENTS AND CONTAINED SUBSTANCES WITH WORK PLACE LIMIT VALUES**

No dangerous ingredients according to Regulation (EC) No. 1907/2006

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures**

General advice	If you feel unwell, seek medical advice (show the label where possible).
If inhaled	Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Monitor breathing, give oxygen if necessary. Consult a physician.
In case of skin contact	Wash off immediately with plenty of water. Consult a physician if necessary.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed	Symptoms: No information available. Risks: No information available.
--	---

4.3 Indication of any immediate medical attention and special treatment needed

Indication of any immediate medical attention and special treatment needed	Treatment: No information available.
---	--------------------------------------

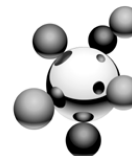
SECTION 5: FIREFIGHTING MEASURES**5.1 Extinguishing media**

Suitable extinguishing media	Water spray, Dry powder, Foam, Carbon dioxide (CO ₂)
-------------------------------------	--

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	Dangerous gases or fumes may occur in case of fire.
---	---

5.3 Advice for firefighters

**LORODAC/20-24**

Version: 3.00

Revision Date 24.05.2012

Special protective equipment for firefighters	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	Standard procedure for chemical fires.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Use personal protective equipment.
-----------------------------	------------------------------------

6.2 Environmental precautions

Environmental precautions	Avoid subsoil penetration. Do not flush into surface water or sanitary sewer system.
----------------------------------	--

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	Use mechanical handling equipment. The material taken up must be disposed of in accordance with regulations.
--------------------------------	--

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling	Wear personal protective equipment. Avoid contact with skin and eyes.
--------------------------------	--

Advice on protection against fire and explosion	Provide sufficient air exchange and/or exhaust in work rooms. Do not spray on a naked flame or any incandescent material.
--	--

Fire-fighting class	B: Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.
----------------------------	--

7.2 Conditions for safe storage, including any incompatibilities

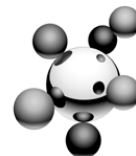
Requirements for storage areas and containers	Keep tightly closed in a dry and cool place.
--	--

Storage class (TRGS 510)	11: Combustible Solids
---------------------------------	------------------------

Other data	Stable at normal ambient temperature and pressure.
-------------------	--

7.3 Specific end uses

Specific use(s)	This information is not available.
------------------------	------------------------------------

**LORODAC/20-24**

Version: 3.00

Revision Date 24.05.2012

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****COMPONENTS WITH WORKPLACE CONTROL PARAMETERS****NATIONAL OCCUPATIONAL EXPOSURE LIMITS**

no data available

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

no data available

8.2 Exposure controls**ENGINEERING MEASURES**

If possible, use material transfer/filling, metering and blending plants that are closed.

PERSONAL PROTECTIVE EQUIPMENT**Respiratory protection**

In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where dust, fibres and smoke occur, use self-contained breathing apparatus or breathing apparatus with a type P2 or P3 filter, in compliance with EN 143. No personal respiratory protective equipment normally required.

Hand protection

The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other., Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time., Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).

gloves suitable for permanent contact:

Material: butyl-rubber
Break through time: \geq 480 min
Material thickness: \geq 0.7 mm

gloves suitable for splash protection:

Material: Nitrile rubber/nitrile latex
Break through time: \geq 30 min
Material thickness: \geq 0.4 mm

Eye protection

Tightly fitting safety goggles, Safety glasses with side-shields

Skin and body protection

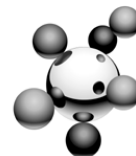
Protective suit

Hygiene measures

Avoid contact with eyes. General industrial hygiene practice. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feedingstuffs. When using, do not eat, drink or smoke.

Protective measures

Avoid contact with eyes. Wear suitable gloves and eye/face protection.

**LORODAC/20-24**

Version: 3.00

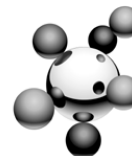
Revision Date 24.05.2012

ENVIRONMENTAL EXPOSURE CONTROLS

General advice	Avoid subsoil penetration.
Water	Do not flush into surface water or sanitary sewer system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Physical state	solid; 20 °C; 1,013 hPa
Form	liquid
Colour	white
Odour	slight, characteristic
Odour Threshold	no data available
pH	5 - 7; 10 g/l; 20 °C
Drop point	ca. 35 °C; 1,013 hPa
Boiling point/boiling range	> 250 °C; 1,013 hPa
Flash point	> 125 °C; 1,013 hPa
Evaporation rate	not determined
Flammability (solid, gas)	not applicable (liquid)
Lower explosion limit	no data available
Upper explosion limit	not determined
Vapour pressure	< 0.0015 hPa; 20 °C < 0.015 hPa; 20 °C
Relative vapour density	not determined
Density	ca. 1.060 g/cm ³ ; 50 °C; 1,013 hPa
Relative density	not applicable
Bulk density	no data available
Solubility in other solvents	Medium: Alcohol; 20 °C; soluble Medium: Acetone; 20 °C; soluble Medium: Hydrocarbons; 20 °C; negligible
Water solubility	20 °C; 1,013 hPa; soluble
Partition coefficient: n-octanol/water	not applicable Justification: surface-active substance
Ignition temperature	
Autoignition temperature	no data available not applicable
Viscosity, dynamic	> 50 mPas; 50 °C
Explosive properties	Not explosive
Oxidizing properties	not expected based on structure and functional groups

**LORODAC/20-24**

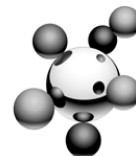
Version: 3.00

Revision Date 24.05.2012

9.2 Other data

None known.

SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity****Note** Stable at normal ambient temperature and pressure.**10.2 Chemical stability****Note** No decomposition if stored and applied as directed.**10.3 Possibility of hazardous reactions****Hazardous reactions** None known.**10.4 Conditions to avoid****Conditions to avoid** Direct heating, dirt, chemical contamination, sunlight, UV or ionising radiation.**10.5 Incompatible materials to avoid****Materials to avoid** Strong acids and oxidizing agents;**10.6 Hazardous decomposition products****Hazardous decomposition products** No decomposition if stored normally.**Thermal decomposition** Hazardous decomposition products formed under fire conditions.**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute toxicity****Acute oral toxicity** Alcohols, C12-14, ethoxylated (≥ 20 EO):
LD50 rat: > 2,000 mg/kg
Category approach
own test results/literature values
Based on available data, the classification criteria are not met.**Acute inhalation toxicity** Alcohols, C12-14, ethoxylated (≥ 20 EO):
no data available**Acute dermal toxicity** Alcohols, C12-14, ethoxylated (≥ 20 EO):
LD50 rabbit: > 2,000 mg/kg;
Category approach
(literature value)
Based on available data, the classification criteria are not met.**Skin corrosion/irritation****Skin irritation** Alcohols, C12-14, ethoxylated (≥ 20 EO):
rabbit: not irritating
Category approach
own test results/literature values



LORODAC/20-24

Version: 3.00

Revision Date 24.05.2012

Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation**Eye irritation**

Alcohols, C12-14, ethoxylated (≥ 20 EO):
rabbit: not irritating
own test results/literature values
Category approach
Based on available data, the classification criteria are not met.

Respiratory or skin sensitization**Sensitisation**

Alcohols, C12-14, ethoxylated (≥ 20 EO):
Maximisation Test guinea pig: not sensitizing
Category approach
(literature value)
Based on available data, the classification criteria are not met.

Germ cell mutagenicity**Genotoxicity in vitro**

Alcohols, C12-14, ethoxylated (≥ 20 EO):
In vitro tests did not show mutagenic effects
Category approach
own test results/literature values

Genotoxicity in vivo

Alcohols, C12-14, ethoxylated (≥ 20 EO):
In vivo tests did not show mutagenic effects
Category approach
(literature value)

Remarks

Alcohols, C12-14, ethoxylated (≥ 20 EO):
Based on available data, the classification criteria are not met.

Carcinogenicity**Carcinogenicity**

Alcohols, C12-14, ethoxylated (≥ 20 EO):
The substance has been shown to be not genotoxic, therefore it is not expected to have a carcinogenic potential.
Category approach
(literature value)

Remarks

Alcohols, C12-14, ethoxylated (≥ 20 EO):
Based on available data, the classification criteria are not met.

Reproductive toxicity**Reproductive toxicity**

Alcohols, C12-14, ethoxylated (≥ 20 EO):
Two-generation reproductive toxicity: rat
NOAEL ((parents)): > 250 mg/kg (based on body weight and day)
NOAEL (F1): > 250 mg/kg (based on body weight and day)
NOAEL (F2): > 250 mg/kg (based on body weight and day)
Category approach
(literature value)

RemarksReproductive toxicity

Alcohols, C12-14, ethoxylated (≥ 20 EO):
Based on available data, the classification criteria are not met.

Teratogenicity

Alcohols, C12-14, ethoxylated (≥ 20 EO):
rat; Oral
NOAEL: > 50 mg/kg (based on body weight and day)
NOAEL (dam): 50 mg/kg (based on body weight and day); Two-generation reproductive toxicity
Category approach
(literature value)

Alcohols, C12-14, ethoxylated (≥ 20 EO):
rat; Dermal
NOAEL: > 250 mg/kg (based on body weight and day)
NOAEL (dam): 250 mg/kg (based on body weight and day); Two-generation reproductive toxicity



LORODAC/20-24

Version: 3.00

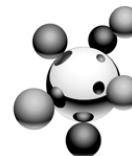
Revision Date 24.05.2012

Remarks-Teratogenicity	Category approach (literature value) Alcohols, C12-14, ethoxylated (≥ 20 EO): Based on available data, the classification criteria are not met.
STOT - single exposure	
Remarks	Alcohols, C12-14, ethoxylated (≥ 20 EO): The substance or mixture is not classified as specific target organ toxicant, single exposure.
STOT - repeated exposure	
Remarks	Alcohols, C12-14, ethoxylated (≥ 20 EO): The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Repeated dose toxicity	Alcohols, C12-14, ethoxylated (≥ 20 EO): rat; Oral; 2 years NOAEL: 50 mg/kg (based on body weight and day) Target Organs: Heart, Liver, Kidney Symptoms: reduced body weight gain, increased relative organ weights Category approach (literature value)
Aspiration hazard	
Aspiration toxicity	Alcohols, C12-14, ethoxylated (≥ 20 EO): not applicable
Toxicological information	Alcohols, C12-14, ethoxylated (≥ 20 EO): Toxicokinetics Category approach The substance is expected to be rapidly absorbed and excreted. (literature value)

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	Alcohols, C12-14, ethoxylated (≥ 20 EO): LC50 (96 h) Cyprinus carpio (Carp): $> 1 - 10$ mg/l; flow-through test; OECD Test Guideline 203 own test results/literature values Category approach
Toxicity to fish - Chronic toxicity	Alcohols, C12-14, ethoxylated (≥ 20 EO): no data available
Toxicity to daphnia and other aquatic invertebrates	Alcohols, C12-14, ethoxylated (≥ 20 EO): EC50 (48 h) Daphnia magna (Water flea): $> 1 - 10$ mg/l; static test; OECD Test Guideline 202 own test results/literature values Category approach
Toxicity to daphnia and other aquatic invertebrates - Chronic toxicity	Alcohols, C12-14, ethoxylated (≥ 20 EO): no data available
Toxicity to aquatic plants	Alcohols, C12-14, ethoxylated (≥ 20 EO): EC50 (72 h) Desmodesmus subspicatus (green algae): $> 1 - 10$ mg/l; static test; OECD Test Guideline 201; own test results/literature values

**LORODAC/20-24**

Version: 3.00

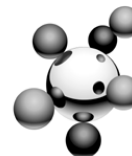
Revision Date 24.05.2012

	Category approach
Toxicity to bacteria	Alcohols, C12-14, ethoxylated (≥ 20 EO): EC50 activated sludge: 140 mg/l; Respiration inhibition Category approach (literature value)
Toxicity to terrestrial flora	Alcohols, C12-14, ethoxylated (≥ 20 EO): emergence, growth; NOEC: 10 mg/kg; Lepidium sativum (cress); OECD Test Guideline 208 own test results/literature values Category approach
Toxicity for other terrestrial non-mammalian fauna	Alcohols, C12-14, ethoxylated (≥ 20 EO): study scientifically unjustified Justification: Readily biodegradable.
12.2 Persistence and degradability	
Biodegradability	Alcohols, C12-14, ethoxylated (≥ 20 EO): Readily biodegradable.; > 60 %; 28 d; aerobic; OECD Test Guideline 301 B own test results/literature values Category approach
12.3 Bioaccumulative potential	
Bioaccumulation	Alcohols, C12-14, ethoxylated (≥ 20 EO): Bioaccumulation is unlikely. (literature value)
12.4 Mobility in soil	
Mobility	Alcohols, C12-14, ethoxylated (≥ 20 EO): Adsorption/Soil; Koc: > 5000; QSAR (literature value) immobile strong adsorption to soil
12.5 Results of PBT and vPvB assessment	
Results of PBT assessment	Alcohols, C12-14, ethoxylated (≥ 20 EO): Based on available data, the classification criteria are not met.
12.6 Other adverse effects	
General advice	Alcohols, C12-14, ethoxylated (≥ 20 EO): None known.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Product	Can be incinerated, when in compliance with local regulations.
waste code of the European Union: EWC	The waste code must be determined in agreement with the regional waste disposal authority or company. A waste code in accordance with the European Waste Catalogue (EWC) may not be assigned to this product since it admits of a classification only when the consumer uses it for some purpose.

SECTION 14: TRANSPORT INFORMATION

**LORODAC/20-24**

Version: 3.00

Revision Date 24.05.2012

14.1 UN number

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
ICAO/IATA	Not dangerous goods

14.2 Proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
ICAO/IATA	Not dangerous goods

14.3 Transport hazard class

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
ICAO/IATA	Not dangerous goods

14.4 Packing group

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
ICAO/IATA	Not dangerous goods

14.5 Environmental hazards

ADR	Environmentally hazardous	no
RID	Environmentally hazardous	no
ADN	Environmentally hazardous	no
IMDG	Marine pollutant	no
ICAO/IATA	Environmentally hazardous	no

14.6 Special precautions for user

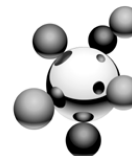
Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks No information available.

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****NATIONAL/OTHER REGULATIONS**

Occupational restrictions Employment restrictions for children and young workers in accordance with



LORODAC/20-24

Version: 3.00

Revision Date 24.05.2012

Directive 94/33/EC and the respective national provisions are to be observed.

Directive 96/82/EC on the control of major-accident hazards involving dangerous substances

list entry in the directive: Directive 96/82/EC does not apply

Other regulations

This surfactant complies with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

NOTIFICATION STATUS

US. Toxic Substances Control Act	TSCA	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	DSL	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	NZIOC	y (positive listing)
Japan. Kashin-Hou Law List	ENCS (JP)	y (positive listing)
Japan. Industrial Safety & Health Law (ISHL) List	ISHL (JP)	y (positive listing)
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	y (positive listing)
China. Inventory of Existing Chemical Substances	INV (CN)	y (positive listing)
Switzerland. Consolidated Inventory	CH INV	y (positive listing)

Please note: the names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in chapter 3.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

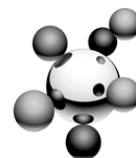
SECTION 16: OTHER INFORMATION

Safety datasheet sections which have been updated:

1. Identification of the substance/mixture and of the company/undertaking
2. Hazards identification
3. Composition/information on ingredients
15. Regulatory information

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



LORODAC/20-24

Version: 3.00

Revision Date 24.05.2012

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. This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

Key or legend to abbreviations and acronyms used in the safety data sheet

ADN	Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
AICS	Australian Inventory of Chemical Substances
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials (US)
BCF	Bioconcentration factor
CLP	Regulation on Classification, Labelling and Packaging of Substances and Mixtures
DIN	Deutsches Institut für Normung
DNEL	Derived No-Effect Level
DSL	Domestic Substances List
EC...	Effect concentration ... %
ENCs	Existing Notified Chemical Substances (Japan)
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISHL	Industrial Safety and Health Law (Japan)
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
KECI	Korea Existing Chemicals Inventory
LC...	Lethal Concentration, ...%
LD...	Lethal Dose, ...%
MARPOL	International Convention for the Prevention of Pollution From Ships
NDSL	Non-Domestic Substances List
NOAEL	no observable adverse effect level
NOEL/NOEC	No Observed-effect level/concentration
NZIoC	New Zealand Inventory of Chemicals
OECD	Organisation for Economic Co-operation and Development
PBT	persistent, bioaccumulative, toxic
PICCS	Philippine Inventory of Chemicals and Chemical Substances
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport international ferroviaire de marchandises dangereuses
TG	Test Guideline
TRGS	Technische Regeln für Gefahrstoffe
TSCA	Toxic Substances Control Act
vPvB	very persistent, very bioaccumulative
WGK	Wassergefährdungsklasse