



Revision date: 30-Aug-2016 Version: 4 Print date: 30-Aug-2016

**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)**

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

**1.1. Product identifier**

Trade name/designation:

RAVENOL Super Fuel Economy SFE SAE 5W-20

Article No.:

1111110

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

Use of the substance/mixture:

Lubricant

**1.3. Details of the supplier of the safety data sheet**

Supplier (manufacturer/importer/only representative/downstream user/distributor):

Ravensberger Schmierstoffvertrieb GmbH

Jöllenbecker Str. 2

33824 Werther

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Telephone: +49 5203 9719 0

Telefax: +49 5203 9719 48

E-mail: kontakt@ravenol.de

Website: www.ravenol.de

E-mail (competent person): kontakt@ravenol.de

**1.4. Emergency telephone number**

Abt. Produktsicherheit, 24h: +49 700 24 112 112 (Company ID: RAV) (outside USA/Canada) 011 49 700 24 112 112 (Company ID: RAV) (inside USA/Canada), +49 5203 9719 0 (Only available during office hours.)

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 [CLP]:

Hazard classes and hazard categories	Hazard statements	Classification procedure
Serious eye damage/eye irritation (Eye Irrit. 2)	H319: Causes serious eye irritation.	

**2.2. Label elements**

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

Hazard pictograms:



**GHS07**

Exclamation mark.

Signal word: Warning

Hazard components for labelling:

zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate); Dec-1-en, Trimere, hydrated; molybdenum

**hazard statements for health hazards**

H319 Causes serious eye irritation.

**Supplemental Hazard information (EU)**

EUH208 Contains molybdenum. May produce an allergic reaction.



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**Precautionary statements Prevention**

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements Response**

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/attention.

**Precautionary statements Disposal**

P501	Dispose of contents/container to according to official regulations for disposal.
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**2.3. Other hazards**

No data available

**SECTION 3: Composition / information on ingredients**

**3.2. Mixtures**

**Hazardous ingredients / Hazardous impurities / Stabilisers:**

product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 157707-86-3 EC No.: 500-393-3	<b>Dec-1-en, Trimere, hydrated</b> Asp. Tox. 1 H304	70 - 80 Wt %
CAS No.: 93819-94-4 EC No.: 298-577-9	<b>zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)</b> Eye Dam. 1, Skin Irrit. 2, Aquatic Chronic 2 <b>Danger</b> H315-H318-H411	1 - < 2 Wt %
CAS No.: 7439-98-7 EC No.: 231-107-2	<b>molybdenum</b> Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 3 H315-H317-H412	0 - < 1 Wt %

Full text of H- and EUH-phrases: see section 16.

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information:**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing. If unconscious place in recovery position and seek medical advice. Do not leave affected person unattended.

**Following inhalation:**

Provide fresh air. Consult a doctor immediately.

**In case of skin contact:**

After contact with skin, wash immediately with plenty of water and soap. Consult a doctor immediately.

**After eye contact:**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Causes serious eye irritation.

**After ingestion:**

Rinse mouth thoroughly with water. Do NOT induce vomiting. Consult a doctor immediately.

**Self-protection of the first aider:**

Use personal protection equipment. No direct artificial respiration to be given by first aider.

**4.2. Most important symptoms and effects, both acute and delayed**

May produce an allergic reaction.

**4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Observe risk of aspiration if vomiting occurs. Causes serious eye irritation.



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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media:

Co-ordinate fire-fighting measures to the fire surroundings.  
Carbon dioxide (CO<sub>2</sub>)  
Extinguishing powder  
alcohol resistant foam

#### Unsuitable extinguishing media:

High power water jet

### 5.2. Special hazards arising from the substance or mixture

During heating or in case of fire, toxic gases is possible.  
The formation of combustible vapours is possible at temperatures above: Flash point  
When hot, product develops flammable vapours.

#### Hazardous combustion products:

Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Gases/vapours, toxic During heating or in case of fire, toxic gases is possible.

### 5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus. Protective clothing.

### 5.4. Additional information

Do not inhale explosion and combustion gases. Move undamaged containers from immediate hazard area if it can be done safely. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

##### Personal precautions:

Use personal protection equipment. Special danger of slipping by leaking/spilling product. Remove persons to safety.

##### Protective equipment:

Wear protective gloves/protective clothing/eye protection/face protection.

#### 6.1.2. For emergency responders

##### Personal protection equipment:

Use personal protection equipment.

### 6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

### 6.3. Methods and material for containment and cleaning up

#### For containment:

Suitable material for taking up: Sand, Kieselguhr, Universal binder, Chemical binding agents, containing acids

#### For cleaning up:

Remove from the water surface (e.g. skimming, sucking). Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

#### Other information:

Treat the recovered material as prescribed in the section on waste disposal.

### 6.4. Reference to other sections

Safe handling: see section 7

Disposal: see section 13

Personal protection equipment: see section 8

### 6.5. Additional information

Clear spills immediately. Use appropriate container to avoid environmental contamination.



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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Protective measures

##### Advices on safe handling:

When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Avoid oil mist. Do not put any product-impregnated cleaning rags into your trouser pockets. Clear spills immediately. Use appropriate container to avoid environmental contamination.

##### Fire prevent measures:

No special fire protection measures are necessary.

##### Environmental precautions:

See section 8.

#### Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Technical measures and storage conditions:

Keep container tightly closed in a cool, well-ventilated place.

#### Requirements for storage rooms and vessels:

Suitable container/equipment material: Floors should be impervious, resistant to liquids and easy to clean. Shafts and sewers must be protected from entry of the product.

Keep/Store only in original container.

#### Hints on storage assembly:

not required

**Storage class:** 10 - Combustible liquids that cannot be assigned to any of the above storage classes

#### Further information on storage conditions:

Store in a cool dry place. Keep away from heat.

### 7.3. Specific end use(s)

#### Recommendation:

Observe technical data sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1. Occupational exposure limit values

No data available

#### 8.1.2. Biological limit values

No data available

#### 8.1.3. DNEL-/PNEC-values

Substance name	DNEL value	① DNEL type ② Exposure route
zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate) CAS No.: 93819-94-4	8.31 mg/m <sup>3</sup>	① DNEL worker ② DNEL long-term inhalative (systemic)

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

See section 7. No additional measures necessary.

#### 8.2.2. Personal protection equipment

##### Eye/face protection:

During transfer: Eye glasses with side protection



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**Skin protection:**

Hand protection  
 Suitable material: NBR (Nitrile rubber), PVC (Polyvinyl chloride)  
 Thickness of the glove material: >= 0,4 mm  
 Breakthrough time (maximum wearing time) >480 min  
 Breakthrough times and swelling properties of the material must be taken into consideration.  
 The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Suitable protective clothing: Protective clothing:

**Respiratory protection:**

Usually no personal respirative protection necessary.

**8.2.3. Environmental exposure controls**

See section 7. No additional measures necessary.

**8.3. Additional information**

No data available

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

**Appearance**

**Physical state:** liquid

**Colour:** brown

**Odour:** characteristic

**Safety relevant basis data**

parameter		at °C	Method	Remark
pH	<i>not determined</i>			
Melting point	<i>not determined</i>			
Freezing point	<i>not determined</i>			
Initial boiling point and boiling range	<i>not determined</i>			
Decomposition temperature (°C):	<i>not determined</i>			
Flash point	227 °C			
Evaporation rate	<i>not determined</i>			
Ignition temperature in °C	<i>not determined</i>			
Upper/lower flammability or explosive limits	<i>not determined</i>			
Vapour pressure	<i>not determined</i>			
Vapour density	<i>not determined</i>			
Density	851 kg/m <sup>3</sup>	20 °C		
Bulk density	<i>not determined</i>			
Water solubility (g/L)	insoluble			
Partition coefficient: n-octanol/ water	<i>not determined</i>			
Dynamic viscosity	<i>not determined</i>			
Kinematic viscosity	45.3 mm <sup>2</sup> /s	40 °C		

**9.2. Other information**

No data available

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No known hazardous reactions. Risk of explosion if heated under confinement.

**10.2. Chemical stability**

The mixture is chemically stable under recommended conditions of storage, use and temperature.

**10.3. Possibility of hazardous reactions**

No hazardous reaction when handled and stored according to provisions.

**10.4. Conditions to avoid**

To avoid thermal decomposition do not overheat.



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### 10.5. Incompatible materials

Materials to avoid: Acid, Reducing agent

### 10.6. Hazardous decomposition products

Hazardous combustion products: Carbon dioxide Carbon monoxide Nitrogen oxides (NOx)

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

CAS No.	Substance name	Toxicological information
15770 7-86-3	Dec-1-en, Trimere, hydrated	<b>LD<sub>50</sub> oral:</b> 5,000 mg/kg
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	<b>LD<sub>50</sub> oral:</b> 2,600 g/m <sup>3</sup> (Rat) <b>LD<sub>50</sub> dermal:</b> 3,160 g/m <sup>3</sup> (Rabbit)

#### Acute oral toxicity:

The product has not been tested.

#### Acute dermal toxicity:

No information available for acute dermal and inhalative toxicity.

#### Acute inhalation toxicity:

No information available for acute dermal and inhalative toxicity.

#### Skin corrosion/irritation:

Repeated exposure may cause skin dryness or cracking. May cause skin and eye irritation.

#### Eye damage/irritation:

Causes serious eye irritation.

#### Respiratory or skin sensitisation:

Contains molybdenum. May produce an allergic reaction.

#### Germ cell mutagenicity:

No indications of human germ cell mutagenicity exist.

#### Carcinogenicity:

No indication of human carcinogenicity.

#### Reproductive toxicity:

No indications of human reproductive toxicity exist.

#### STOT-single exposure:

No information available.

#### STOT-repeated exposure:

No information available.

#### Aspiration hazard:

For viscosity data, see section 9.

## SECTION 12: Ecological information

### 12.1. Toxicity

CAS No.	Substance name	Toxicological information
15770 7-86-3	Dec-1-en, Trimere, hydrated	<b>LC<sub>50</sub>:</b> 1,000 mg/l 4 d
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	<b>LC<sub>50</sub>:</b> 4.5 mg/l 4 d <b>EC<sub>50</sub>:</b> 5.4 mg/l 2 d <b>EC<sub>50</sub>:</b> 2.1 mg/l 3 d

#### Assessment/classification:

The product has not been tested.

### 12.2. Persistence and degradability

CAS No.	Substance name	Biodegradation	Remark
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	No	

#### Additional information:

The product has not been tested.



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### 12.3. Bioaccumulative potential

CAS No.	Substance name	Log K <sub>OC</sub>	Bioconcentration factor (BCF)
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	0.9	

#### Accumulation / Evaluation:

No information available.

### 12.4. Mobility in soil

No information available.

### 12.5. Results of PBT and vPvB assessment

CAS No.	Substance name	Results of PBT and vPvB assessment
157707-86-3	Dec-1-en, Trimere, hydrated	The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.
7439-98-7	molybdenum	The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

### 12.6. Other adverse effects

No information available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Dispose of waste according to applicable legislation.

#### 13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV

#### Waste code packaging:

##### Remark:

Dispose of waste according to applicable legislation.

#### Waste treatment options

##### Appropriate disposal / Product:

Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal.

##### Appropriate disposal / Package:

Non-contaminated packages may be recycled.

### 13.2. Additional information

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

## SECTION 14: Transport information

No dangerous good in sense of these transport regulations.

### 14.1. UN-No.

not relevant

### 14.2. UN proper shipping name

not relevant

### 14.3. Transport hazard class(es)

not relevant

### 14.4. Packing group

not relevant

### 14.5. Environmental hazards

not relevant

### 14.6. Special precautions for user

not relevant



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**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU legislation

No data available

#### 15.1.2. National regulations

##### [DE] National regulations

#### Restrictions of occupation

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

#### Water hazard class (WGK)

##### WGK:

2 - deutlich wassergefährdend

##### Description:

hazardous to water (WGK 2)

##### Source:

Classification according to VwVwS, Annex 4.

#### Technische Regeln für Gefahrstoffe

TRGS 510

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

#### Berufsgenossenschaftliche Vorschriften (BGV)

Berufsgenossenschaftliche Informationen (BGI) 868

Berufsgenossenschaftliche Regeln (BGR) 189, 190, 192, 195

#### Other regulations, restrictions and prohibition regulations

Altöl-Verordnung (AltöIV)

### 15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

### 15.3. Additional information

No data available

## SECTION 16: Other information

### 16.1. Indication of changes

sections 3, 4, 11, 15, 16

### 16.2. Abbreviations and acronyms

See overview table at [www.euphrac.eu](http://www.euphrac.eu)

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).





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### 16.3. Key literature references and sources for data

67/548/EEC - Dangerous Substances Directive  
 1999/45/EEC - Dangerous Preparations Directive  
 EC 1907/2006 - REACH Regulation  
 1272/2008 EC - Regulation on classification, labeling and packaging of substances and mixtures, and amending Directives 67/548/EEC and 1999/45/EC and Regulation (EC) No 1907/2006  
 Regulation (EC) No 1907/2006 (REACH), Annex II  
 European Chemicals Agency (ECHA), C & L classification and labeling inventory  
 European Chemicals Agency (ECHA), ECHA CHEM Registered substances  
 OECD The Global Portal to Information on Chemical Substances (ChemPortal)  
 Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA): GESTIS substance database and International limit values for chemical substances  
 Federal Environment Agency, Section IV 2.4: Documentation and Information Centre substances hazardous to water Rigoletto (catalog substances hazardous to water)

### 16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Classification according to Regulation (EC) No 1272/2008 [CLP]:

Hazard classes and hazard categories	Hazard statements	Classification procedure
Serious eye damage/eye irritation (Eye Irrit. 2)	H319: Causes serious eye irritation.	

### 16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

### 16.6. Training advice

No data available

### 16.7. Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

## - Zertifikat / ProduktInformation-

### RAVENOL Super Fuel Economy SFE SAE 5W-20

Art. 1111110

CleanSynto®

#### Beschreibung:

**RAVENOL Super Fuel Economy SFE SAE 5W-20** ist ein vollsynthetisches Leichtlauf-Motorenöl mit CleanSynto® Technologie auf Basis von PAO (Polyalphaolefinen) für PKW Benzin- und Dieselmotoren mit und ohne Turboaufladung und Direkteinspritzer. Minimierung von Reibung, Verschleiß und Kraftstoffverbrauch, exzellente Kaltstarteigenschaften. Verlängerte Ölwechselintervalle gemäß Herstellervorschrift.

**RAVENOL Super Fuel Economy SFE SAE 5W-20** erreicht durch seine Formulierung mit speziellen Grundölen einen hohen Viskositätsindex. Das exzellente Kaltstartverhalten sorgt für eine optimale Schmiersicherheit in der Kaltlaufphase. Durch eine deutliche Kraftstoffersparnis trägt **RAVENOL Super Fuel Economy SFE SAE 5W-20** durch Reduzierung der Emissionen zur Schonung der Umwelt bei.

#### Anwendungshinweise:

**RAVENOL Super Fuel Economy SFE SAE 5W-20** ist ein universelles Kraftstoff sparendes Motorenöl, ein Spitzenprodukt für moderne PKW-Benzin- und Dieselmotoren.

#### Qualitäts-Klassifikation:

**RAVENOL Super Fuel Economy SFE SAE 5W-20** ist freigegeben, praxisbewährt und erprobt in Aggregaten mit Füllvorschrift:

Spezifikation: ACEA A5/B5

Lizenziert: API SN Resource Conserving / SM Energy Conserving, ILSAC GF-5

Empfehlungen: FORD WSS-M2C930-A, FORD WSS-M2C930-B (extended drain capability), Ford WSS-M2C925-A/B, Ford WSS-M2C948-B, Chrysler MS-6395, Honda/Acura HTO-6, Nissan, Mazda, Suzuki, Toyota, Fiat 9.55535-CR1

#### Eigenschaften:

**RAVENOL Super Fuel Economy SFE SAE 5W-20** bietet:

- Garantiert eine schnellstmögliche Durchholung des Motors
- Hat einen hohen Fuel Economy (FE)-Effekt aufgrund der verwendeten Grundöle und Additive. Geringe Verdampfungsneigung, dadurch niedriger Ölverbrauch.
- Bietet Sicherheit gegen Verschlammungen, Verkokungen, Verlackungen und Korrosion auch unter ungünstigen Einsatzbedingungen. Keine ölbedingten Ablagerungen in Brennräumen, in der Kolbenringzone und an Ventilen.
- Die Funktion der Hydrostößel ist bei allen Temperaturen gewährleistet.
- Stabiles Motorenöl, keine NOx- Oxidation.
- Gutes Alterungsverhalten, bestätigt durch den Hot Tube Test.
- Gute Rußpartikelabsorption und -dispersion.
- Neutral gegenüber Dichtungsmaterialien.

#### Technische Kennwerte:

Eigenschaften	Einheit	Daten	Prüfung nach	
<b>Farbe</b>		braun	visuell	
<b>Dichte</b>	bei 20°C	kg/m <sup>3</sup>	851	EN ISO 12185
<b>Viskosität</b>	bei -30°C	mPa*s	3700	ASTM D 5293
	bei 40°C	mm <sup>2</sup> /s	45,3	DIN 51 562
	bei 100°C	mm <sup>2</sup> /s	8,4	DIN 51 562
<b>Viskositätsindex VI</b>		164	DIN ISO 2909	
<b>Flammpunkt (COC)</b>	°C	227	DIN ISO 2592	
<b>Pourpoint</b>	°C	-45	DIN ISO 3016	
<b>TBN</b>	mg KOH/g	10	DIN ISO 3771	
<b>HTHS</b>	bei 150°C	mPa*s	2,9	CEC-L-036-90

Alle angegebenen Daten sind ca. Werte und unterliegen handelsüblichen Schwankungen.

Alle Angaben entsprechen nach bestem Wissen dem derzeitigen Stand der Erkenntnisse und unserer Entwicklung. Änderungen bleiben vorbehalten. Alle Bezugnahme auf DIN-Normen dienen nur der Warenbeschreibung und stellen keine Garantie dar. Bei vorliegenden Problemfällen technische Beratung anfordern.

14.10.15