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 VMO SAE 5W-40

Article No.:
1111133

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
D
Telephone: +49 5203 9719 0
Telefax: +49 5203 9719 40
E-mail: kontakt@ravenol.de
Website: www.ravenol.de
E-mail (competent person): technik@ravenol.de

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1.4. Emergency telephone number

Abt. Technik (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 (Mo-Do 7.30 Uhr - 16.30 Uhr, Fr 7.30 Uhr - 13.15 Uhr) (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.	

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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)

hazard statements for health hazards	
H319	Causes serious eye irritation.

Supplemental Hazard information (EU): -

Precautionary statements Prevention	
P264.1	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	
P501.2	Dispose of contents/container to an appropriate recycling or disposal facility.

2.3. Other hazards
No data available

SECTION 3: Composition / information on ingredients

*
3.2. Mixtures
Additional information:
The base oil / mineral oil used has a value of less than 3% DMSO, so it is not classified as a carcinogen.

Hazardous ingredients / Hazardous impurities / Stabilisers:

product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concen-tration
CAS No.: 36878-20-3 **EC No.:** 253-249-4	**bis(nonylphenyl)amine** Aquatic Chronic 4 H413	1 – < 2 Wt %
CAS No.: 93819-94-4 **EC No.:** 298-577-9 **REACH No.:** 01-2119543726-33	**zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)** Eye Dam. 1, Skin Irrit. 2, Aquatic Chronic 2 **Danger** H315-H318-H411	1 – < 2 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. Take off immediately all contaminated clothing. If unconscious place in recovery position and seek medical advice. Do not leave affected person unattended.

Following inhalation:
Consult a doctor immediately. Provide fresh air. In case of respiratory tract irritation, consult a physician.

In case of skin contact:
After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap. If skin irritation occurs: Get medical advice/attention.

After eye contact:
After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

After ingestion:
Rinse mouth immediately and drink plenty of water. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Self-protection of the first aider:
Use personal protection equipment.

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4.2. Most important symptoms and effects, both acute and delayed
Causes serious eye irritation.

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Co-ordinate fire-fighting measures to the fire surroundings.
Carbon dioxide, Dry extinguishing powder, alcohol resistant foam , Sand

Unsuitable extinguishing media:

Full water jet

5.2. Special hazards arising from the substance or mixture

During heating or in case of fire, toxic gases is possible.

Hazardous combustion products:

Carbon monoxide Carbon dioxide (CO2) Nitrogen oxides (NOx) In case of fire: Gases/vapours, toxic

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

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6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Personal precautions:

Special danger of slipping by leaking/spilling product. Use personal protection equipment.

Protective equipment:

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

Emergency procedures:

Remove all sources of ignition. Remove persons to safety. Provide adequate ventilation.

6.1.2. For emergency responders

Personal protection equipment:

Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. 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. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment:

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.

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.

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. Wear personal protection equipment (refer to section 8).

Fire prevent measures:
No special measures are necessary.
Fire class B

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. When using do not eat, drink or smoke. Avoid contact with eyes and skin.

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:
Do not store together with: Food and feedingstuffs Oxidising agent

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/m³	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

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. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. Filtering device with filter or ventilator filtering device of type: A

8.2.3. Environmental exposure controls
No data available

8.3. Additional information
Mineral oil mist limits:
OSHA PEL - value 5 mg / m³, ACGIH STEL - value of 10 mg / m³

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance
Physical state: Liquid **Colour:** tawny
Odour: characteristic

Safety relevant basis data

parameter		at °C	Method	Remark
pH	*not applicable*			
Melting point	*not determined*			
Freezing point	*not determined*			
Initial boiling point and boiling range	*not applicable*			
Decomposition temperature (°C):	*not determined*			
Flash point	242 °C			
Evaporation rate	*not determined*			
Ignition temperature in °C	*not determined*			
Upper/lower flammability or explosive limits	*not determined*			
Vapour pressure	*not determined*			
Vapour density	*not determined*			
Relative density	848 kg/m³	20 °C		
Bulk density	*not determined*			
Water solubility (g/L)	The study does not need to be conducted because the substance is known to be insoluble in water.			
Partition coefficient: n-octanol/ water	*not determined*			
Dynamic viscosity	*not determined*			
Kinematic viscosity	87.5 mm²/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.
Possibility of hazardous reactions: Oxidising agent, strong

10.4. Conditions to avoid
To avoid thermal decomposition do not overheat.

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

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11.1. Information on toxicological effects

CAS No.	Substance name	Toxicological information
36878-20-3	bis(nonylphenyl)amine	**LD_{50} oral:** 5,000 g/m³ (Rat) **LD_{50} dermal:** >2,000 g/m³ (Rabbit)
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	**LD_{50} oral:** 2,600 g/m³ (Rat) **LD_{50} dermal:** 3,160 g/m³ (Rabbit)

Acute oral toxicity:
ATEmix calculated: > 2.000 mg/kg

Acute dermal toxicity:
ATEmix calculated: > 2.000 mg/kg

Acute inhalation toxicity:
There are no data available on the preparation/mixture itself.

Skin corrosion/irritation:
No irritant effect.
Frequently or prolonged contact with skin may cause dermal irritation.

Serious eye damage/irritation:
Causes serious eye irritation.

Respiratory or skin sensitisation:
No sensitizing effects known.

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.

Aspiration hazard:
Observe risk of aspiration if vomiting occurs.

SECTION 12: Ecological information

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12.1. Toxicity

CAS No.	Substance name	Toxicological information
36878-20-3	bis(nonylphenyl)amine	**LC_{50}:** >100 mg/l 4 d **EC_{50}:** >100 mg/l 2 d **EC_{50}:** 600 mg/l 3 d
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	**LC_{50}:** 4.5 mg/l 4 d **EC_{50}:** 5.4 mg/l 2 d **EC_{50}:** 2.1 mg/l 3 d

Assessment/classification:
The product has not been tested.

Additional ecotoxicological information:
Do not allow uncontrolled discharge of product into the environment.

12.2. Persistence and degradability

CAS No.	Substance name	Biodegradation	Remark
36878-20-3	bis(nonylphenyl)amine	No	
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	No	

Additional information:
Not readily biodegradable (according to OECD criteria) Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

12.3. Bioaccumulative potential

CAS No.	Substance name	Log K_{OC}	Bioconcentration factor (BCF)
36878-20-3	bis(nonylphenyl)amine	7.6	1,584.89
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	0.9	

12.4. Mobility in soil
The product has not been tested.

12.5. Results of PBT and vPvB assessment

CAS No.	Substance name	Results of PBT and vPvB assessment
36878-20-3	bis(nonylphenyl)amine	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.

The substances in the mixture do 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.

Waste treatment options
Appropriate disposal / Product:
Dispose of waste according to applicable legislation.

Appropriate disposal / Package:
Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

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

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

Störfallverordnung

for substances contained in the product:

E2 Hazardous to the aquatic environment in Category Chronic 2

Technische Anleitung Luft (TA-Luft)

Remark:

To follow: 5.2.5.

Water hazard class (WGK)

WGK:

2 - deutlich wassergefährdend

Source:

Self-classification (mixture; calculation rule).

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 (AltölV)

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**

1.4.	Emergency telephone number
2.2.	Label elements
3.2.	Mixtures
4.2.	Most important symptoms and effects, both acute and delayed
6.1.	Personal precautions, protective equipment and emergency procedures
11.1.	Information on toxicological effects
12.1.	Toxicity
14.7.	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
15.1.	Safety, health and environmental regulations/legislation specific for the substance or mixture
16.1.	Indication of changes

16.2. Abbreviations and acronyms

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

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	
H315	Causes skin irritation.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

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.

* Data changed compared with the previous version

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33819 Werther
Tel.: 05203/9719-0
Fax.: 05203/9719-40 / 41

- Zertifikat / ProduktInformation-

RAVENOL VMO SAE 5W-40

Art. 1111133

MID SAPS CleanSynto®

Beschreibung:

RAVENOL VMO SAE 5W-40 ist ein vollsynthetisches Mid SAPS Leichtlauf-Motorenöl mit CleanSynto® Technologie für PKW Otto- und Dieselmotoren mit und ohne Turboaufladung und Direkteinspritzer. Minimierung von Reibung, Verschleiß und Kraftstoffverbrauch, exzellente Kaltstarteigenschaften. Verlängerte Ölwechselintervalle gemäß Herstellervorschrift.
RAVENOL VMO SAE 5W-40 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 VMO SAE 5W-40** durch Reduzierung der Emissionen zur Schonung der Umwelt bei. Minimaler Verschleiß verlängert die Lebensdauer des Motors.
RAVENOL VMO SAE 5W-40 verlängert die Lebensdauer von Dieselpartikelfilter DPF und 3-Wege Katalysator TCW. Erfüllt die EURO IV und EURO V Norm für Abgasreduzierung.

Anwendungshinweise:

RAVENOL VMO SAE 5W-40 ist ein universelles, synthetisches Leichtlauf Motorenöl speziell entwickelt für Pumpe-Düse-Dieselmotoren. Außerdem ist dieses Schmiermittel ausgezeichnet geeignet für Benzin- und Dieselmotoren in PKW und Transportern mit und ohne Turbolader. Wegen der speziellen Zusammensetzung ist **RAVENOL VMO SAE 5W-40** hervorragend geeignet zur Anwendung für mehrere der neuesten OEM Anforderungen.

Qualitäts-Klassifikation:

RAVENOL VMO SAE 5W-40 ist freigegeben, praxisbewährt und erprobt in Aggregaten mit Füllvorschrift:
Spezifikationen: API SN/CF, ACEA C3
Lizensiert: API SN
Freigaben: MB-Freigabe 229.31, VW 502 00 / 505 00 / 505 01
Empfehlungen: BMW Longlife-04, Porsche A40, Ford WSS-M2C917-A, Fiat 9.55535-S2, Fiat 9.55535-GH2
Audi/Volkswagen G 052 167 M2, G 052 167 M4 (MX), G 052 167 M6 (MX), BMW 81 22 9 407 002,
BMW 81 22 9 407 029, BMW 81 22 9 407 547, Mercedes Benz 000 989 82 01

Eigenschaften:

RAVENOL VMO SAE 5W-40 bietet:

- Kraftstoffersparnis im Teil- und Vollastbetrieb
- MID SAPS = reduzierte Sulfatasche, Phosphor und Schwefel
- Hervorragender Verschleißschutz und hoher Viskositätsindex sichern auch unter Hochgeschwindigkeits-Fahrbedingungen die Langlebigkeit des Motors.
- Hervorragende Kaltstarteigenschaften auch bei niedrigen Temperaturen von unter -30°C.
- Die Funktion der Hydrostößel ist bei allen Temperaturen gewährleistet.
- Einen sicheren Schmierfilm bei hohen Betriebstemperaturen.
- Geringe Verdampfungsneigung, dadurch niedriger Ölverbrauch.
- Keine ölbedingten Ablagerungen in Brennräumen, in der Kolbenringzone und an Ventilen.
- Neutralität gegenüber Dichtungsmaterialien.
- Verlängerte Ölwechselintervalle schützen natürliche Ressourcen.

Technische Kennwerte:

Eigenschaften		Einheit	Daten	Prüfung nach
Farbe			gelbbraun	visuell
Dichte	bei 20°C	kg/m³	859	EN ISO 12185
Viskosität	bei -30°C	mPa.s	5800	DIN 51 377
Viskosität	bei 40°C	mm²/s	83	DIN 51 562
	bei 100°C	mm^2/s	13,8	DIN 51 562
Viskositätsindex VI			182	DIN ISO 2909
Flammpunkt (COC)		°C	225	DIN ISO 2592
Pourpoint		°C	-39	DIN ISO 3016
TBN		mg KOH/g	7,7	DIN ISO 3771
Sulfatasche		% wt.	0,77	DIN 51 575

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 Bezugnahmen auf DIN-Normen dienen nur der Warenbeschreibung und stellen keine Garantie dar. Bei vorliegenden Problemfällen technische Beratung anfordern.
02.11.15