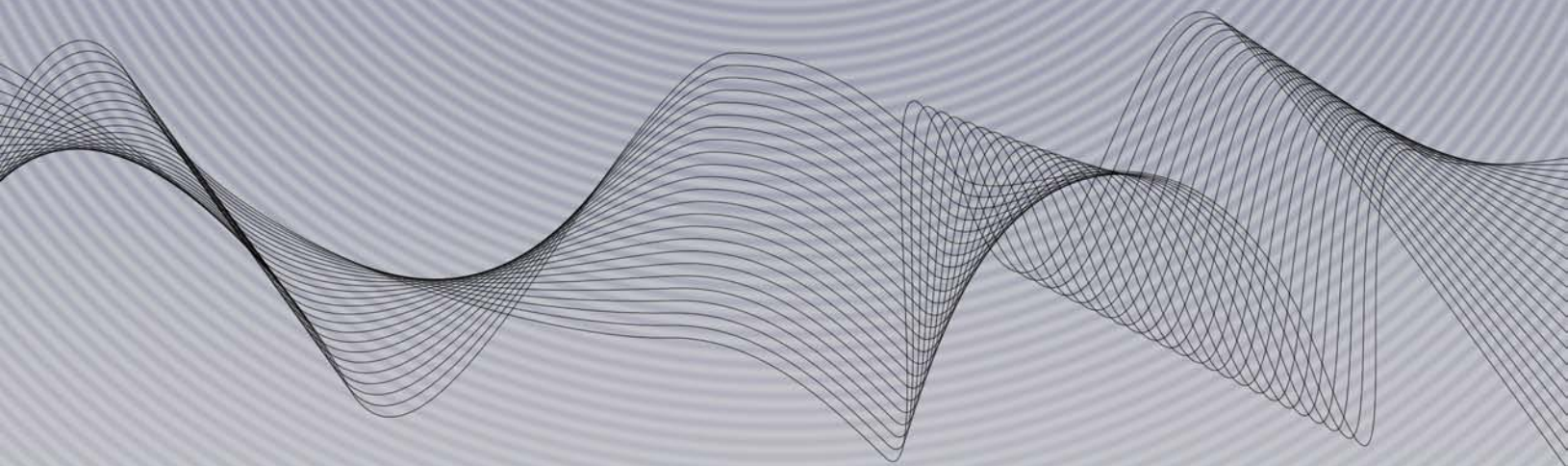
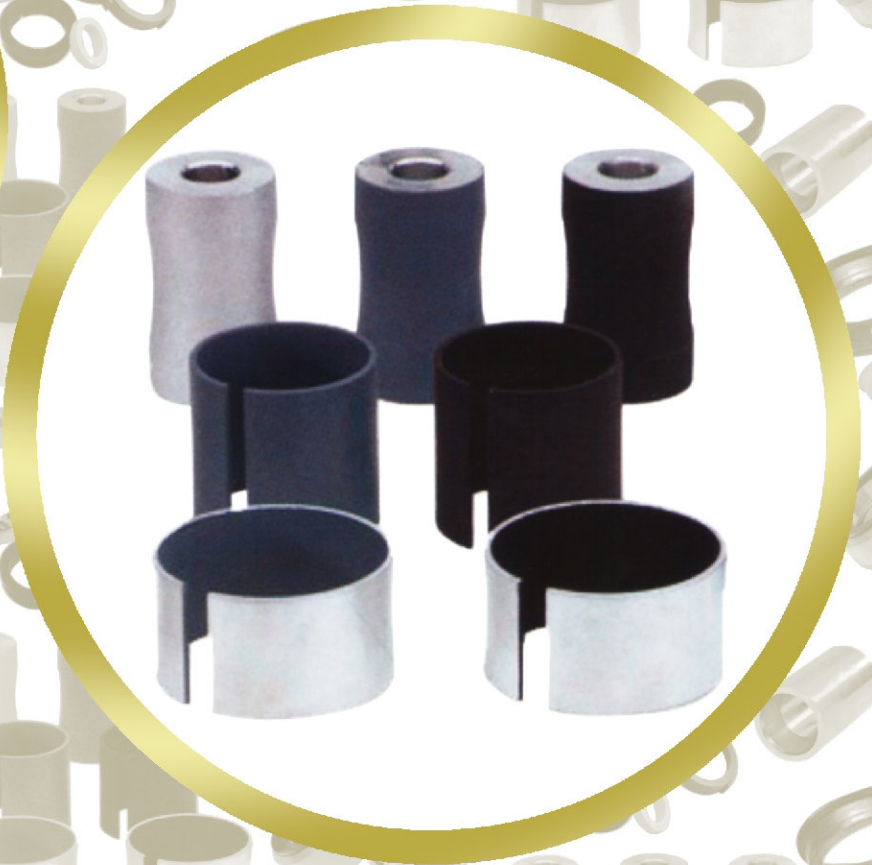




Rubber/Metall-Adhesives





RUBBER-METAL BONDING AGENTS

Introduction

Rubber-Metal Bonding Agents are used to connect dissimilar elastomer (such as natural rubber, styrene butadiene, chloroprene, acrylonitrile butadiene, butyl, ethylene propylene, epichlorohydrin, chlorosulfonated polyethylene, urethane, silicone, acryl and fluoro rubber) to metal (such as iron, steel, aluminium and brass) or to a wide range of plastics (such as polyamides, polyepoxides, polyoxymethylene and polyfluoroethylene) as well as to glass and textiles.

Among the many applications using this bonding method are shock absorbers, motor mounts and vibration mounts, connecting elements, various bearings, O-rings and gaskets, rollers and cylinders, construction elements for rails, tracks and bridge constructions, etc..

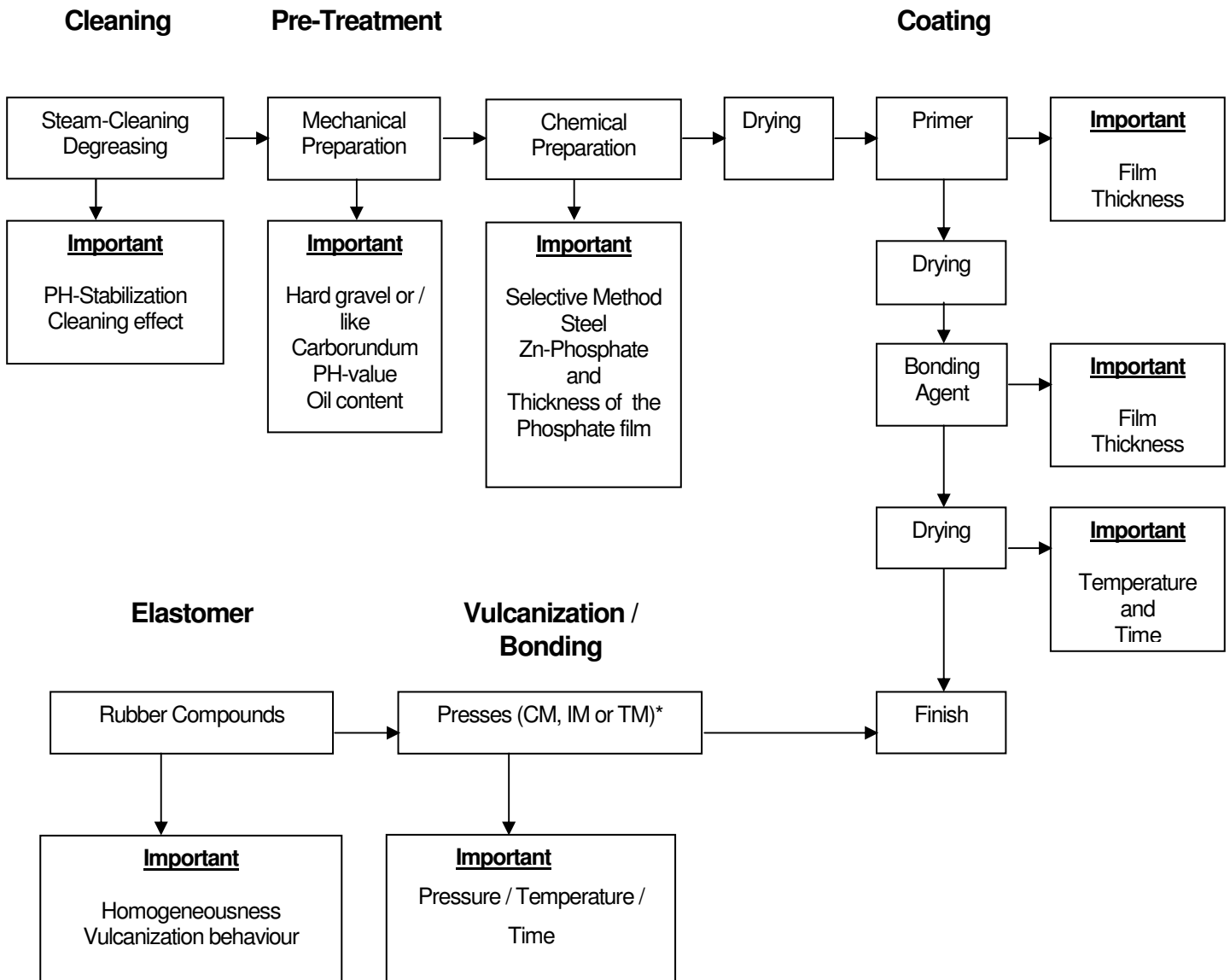
Two separate and different methods are used to manufacture the above items:

1. Production of the rubber compound.
2. Preparation and coating with bonding agents of the metal parts.

Table 1 (page 2) shows the most important effects of the rubber-metal bond

Manufacturing Process of the Rubber-Metal Parts

Metal Pre-Treatment



* CM: Compression Moulding

* IM: Injection Moulding

* TM: Transfer Moulding

Pre-Treatment of Metal Parts

As it is well known, in order to assure a corrosion-resistant bond, it is essential to start with a thoroughly pre-treated metal surface.

To accomplish this, after cleaning the metal is pre-treated chemically or mechanically. Depending on the metal, the parts are degreased in perchloroethylene, trichloroethylene, or 1.1.1. –trichloroethane and subsequently tumbled with carborundum or hard gravel.

Chemical pre-treatment is somewhat more complex and again depends upon the metal to be treated.

For plastic surface, a simple cleaning usually suffices: only rarely is a tumbling operation required. (Polyoxymethylene and polyfluoromethylene must be treated chemically).

Since oxidation may have a negative effect on the bond, the metal should not be stored for long after tumbling.

Therefore, the metal should be primed as soon as possible. In fact, aluminium should be primed the same day.

Table 2

Suitable Mechanical and Chemical Pre-Treatment Methods

Material	Mechanical	Chemical
Steel	Hard gravel, Degreasing	Phosphate
Aluminium	Carborundum, Degreasing	Chrome
Brass	Carborundum, Degreasing	---
Stainless Steel	Carborundum, Degreasing	---
Zinc	Carborundum, Degreasing	---
Polyamide	Hard gravel, Degreasing	---
Epoxy	Hard gravel, Degreasing	---
Polyester	Hard gravel, Degreasing	---
Polyoxymethylene	---	p-toluenesulfonic acid
Polyfluoromethylene	---	Sodium in Liquid Ammonia

Application

Complete homogeneity of the Bonding Agent must be assured by thorough stirring prior to use.

Any conventional coating method can be used to apply the Bonding Agent, such as spray gun, brush, dipping, roller or pouring.

Since the Bonding Agent is dispersion, it is not ideal for dipping. Spray gun application (automatic multi-nozzle equipment) is the most practical method.

Because of the granule size, airless guns are not suitable.

Experience has shown the following thickness of Primer and Bonding Agent provide the best result:

Primer	approx. 8 μ m - 10 μ m
Bonding Agent	approx. 15 μ m - 20 μ m

The Primer can be dried at room temperature or higher, up to 80 – 149 °C. However, since the Bonding Agent is a cross-linking rubber solution, it starts curing at elevated temperatures and therefore prevents proper connection.

Therefore, the bond coating must not be dried at room temperatures exceeding 80 – 120 °C.

Table 3

Drying Chart

Bonding Agent	At Room Temperature	At 80° C
KA&MELOCK MP 05	30 minutes	5 minutes
KA&MELOCK KM 12	30 minutes	10 minutes
KA&MELOCK KM 14	150 minutes	30 minutes
KA&MELOCK KM 16	30 minutes	10 minutes
KA&MELOCK KM 22	30 minutes	5 minutes
KA&MELOCK KM 28	30 minutes	5 minutes
KA&MELOCK KM 36	30 minutes	5 minutes
KA&MELOCK KM 36 W	30 minutes	5 minutes

The actual bonding between metal and rubber occurs during the vulcanization process.

The fresher the rubber mix, the more positive the bond.

Therefore, if rubber compounds have been stored for extensive periods, they must be re-homogenized with rollers before bonding.

Although metal parts with the Primer of Bonding Agent can be stored for several days in a clean environment, oxidation and migration of plasticizers have a negative effect on the bond.

The rubber surface can be reactivated: however, complete removal of any solvent residue is imperative to avoid formation of gas blisters during the vulcanization process.

Although chemical additives generally do not affect bond quality, large proportions of plasticizers and age retardants (such as **thioester** or **thioether**) should be avoided.

The Bonding Agents can be applied with all kinds of vulcanization methods, such as CM, TM and IM methods, free vulcanizing etc...

Vulcanizing temperatures between 90° C – 190° C will work well provided the process allows for sufficient incubation time. In the TM and IM methods, the form must be completely filled with the rubber mix before vulcanization can start.

One- or Two-Coat System

Whenever the parts to be bonded will be subject to great dynamic stress and corrosion, the two-coat method is recommended; use of Primer enhances the bonding effect. This method should be used to manufacture vibration mounts, rollers etc...

For applications where the aforementioned is of no concern, the one-coat method generally produces a satisfactory bonding effect, as, for instance in gasket production.

Table 4 (page 6) shows a list of polymer-bonding agents.

Table 4
Polymer & KA&MELOCK Bonding Agent List

Abbreviation	Elastomer	One-Coat Method	Two-Coat Method
ACM	Acrylic Rubber	MP 05 KM 28* KM 36 or KM 36 W	-
BR	Polybutadiene	-	MP 05 + KM 12 MP 05 + KM 16 MP 05 + KM 19
CR	Chloroprene Rubber	-	MP 05 + KM 12 MP 05 + KM 16 MP 05 + KM 19
CSM	Chlorosulfonated Polyethylene	-	MP 05 + KM 14 MP 05 + KM 19
AEM "VAMAC"	Ethylene Acrylic Rubber	MP 05 KM 36 or KM 36 W	KM 28 + KM 16
ECO	Epichlorohydrin Rubber	KM 36 or KM 36 W	-
EPDM / EPM	Ethylene Propylene Rubber	-	MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
EVA	Ethylene Vinyl Acetate	-	MP 05 + KM 19
FPM	Fluorinated Rubber	KM 22	-
IIR	Butyl Rubber	-	MP 05 + KM 12 MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
BIIR / CIIR	Bromo-/Chlorobutyl Rubber	-	MP 05 + KM 12 MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
IR	Polyisoprene	-	MP 05 + KM 12 MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
NBR	Nitrile Rubber	MP 05 KM 36 or KM 36 W	MP 05 + KM 12 MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
HNBR	Hydrogenated Nitrile Rubber	MP 05 KM 28* KM 36 or KM 36 W	MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
NR	Natural Rubber	-	MP 05 + KM 12 MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
SI	Silicone Rubber	KM 28	-
SBR	Butadiene-Styrene Copolymer	-	MP 05 + KM 12 MP 05 + KM 14 MP 05 + KM 16 MP 05 + KM 19
Rubber-metal and rubber-plastic bonded parts are used for many applications. The selection of elastomer, metal and bond depends on the final use of the finished part.			

* Requires peroxide cure system in elastomer.

Table 5 lists specific Bonding Agents grades

Bonding Agent Grades

Rubber-Metal Parts	Bonding Agent
Shock absorbers of all kinds, such as Engine Mountings, bearing, hangers, gear boxes etc...	KA&MELOCK MP 05 + KA&MELOCK KM 12 KA&MELOCK MP 05 + KA&MELOCK KM 16
Gaskets	KA&MELOCK MP 05
Rollers	KA&MELOCK MP 05 + KA&MELOCK KM 14
Wheels and spools	KA&MELOCK MP 05 + KA&MELOCK KM 16

Lacquering and galvanizing with compatible chemicals and solvents do not have a detrimental effect on the bond.

Properties of Finished Part

The strength of the bond provided is frequently higher than that of the rubber itself.

It is quite usual that, when exposed to stress tests, it is the elastomer that breaks, not the bond.

Cautionary Information

Before using this or any KA&MELOCK product, refer to the Material Safety Data Sheet (MSDS) and label for safe use and handling instructions. For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

All information is based upon laboratory tests and industrial experience, and is intended for use, at their own risk, by persons having technical skill. We assume no liability in connection with the use of the product described here in. Values stated in this bulletin represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact CHEMOSIL. Information provided herein is based upon tests believed to be reliable. Inasmuch our company has no control over the manner in which others may use this information; it does not guarantee the results to be obtained. In addition, our company does not guarantee the performance of the product or the results obtained from the use of the product or this information where the product has been repackaged by any third party including but not limited to any product end user. Nor does the company make any express or implied warranty of merchantability, or fitness for a particular purpose concerning the effects or results of such use.

**KA&MELOCK MP 05
Universal Primer****Description**

KA&MELOCK MP 05 is an universal primer for KA&MELOCK Bonding Agents, suitable for use with Bonding Agents KA&MELOCK KM 12, KA&MELOCK KM 14, KA&MELOCK KM 16 and KA&MELOCK KM 19.

KA&MELOCK MP 05 provides the elastomer / metal bonding with excellent protection against water, corrosion and generally, against hydrolytic effects.

In addition, it results in superior dynamic and temperature stability. (An added feature obtained with KA&MELOCK MP 05 is resistance to technical greases and oils).

Even in the case or of hard-to-bond substrates, use of KA&MELOCK MP 05 facilitates achievement of excellent bond.

KA&MELOCK MP 05 lends itself exceptionally well to the one-coat bonding of Nitrile Rubber (NBR), widely for gasketing.

Technical Data*

Composition	Polymers and Fillers dispersed in Solvents
Colour	Grey
Viscosity 4 mm DIN-Cup	18 - 22 s
Specific Gravity	0,92 - 0,96 g/cm ³
Flashpoint	18 °C
Solid Content	22 - 26 % by weight
Shelf life	24 months, in closed containers below 25 ° C.

*Data is typical and not to be used for specification purposes.

Application

A suitably prepared substrate surface to obtain a stable sealing performance in terms of elastomer has a fundamental importance. All oil, grease and other soluble contaminants, the cleaner should be cleaned by cleaning with solvents or alkaline. Rust, sediment, and other insoluble impurities to be removed by mechanical or chemical methods. Sand blasting is the most commonly used mechanical methods. After mechanical cleaning of grease and abrasion caused by longer to clear the dust is strongly recommended that a second degreasing step.

The KA&MELOCK MP 05 primer can be applied by brush, dipping or spraying.

For the recommended wet coating thickness of approximately 50 - 60 µm, dry coating thickness of approximately 10 - 12 µm. The following dilution is recommended:

Brush	Undiluted
Dipping	Undiluted or 20 % dilution with MIBK
Spraying	40 – 60 % dilution with MIBK

Important

Undiluted KA&MELOCK MP 05 must be thoroughly stirred prior to application to assure homogeneity.

Diluted product must be stirred continuously to avoid sedimentation (separation).

When dry, KA&MELOCK MP 05 forms a grey film on the metal part, providing excellent corrosion protection.

Metal parts properly primed with KA&MELOCK MP 05 can be stored for several weeks in a clean environment.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

Phone number to call in case of emergency:

National Poisons Information Service

ANKARA: Emergency Phone: +90 312 114 (<http://uzem.rshm.gov.tr/>)

The above information and recommendations contained are based on our knowledge and experience. Beyond our control due to different materials and conditions of application for our products, processes and applications will be used when appropriate in order to make sure that we strongly advise that adequate testing is performed.

**KA&MELOCK KM 12
Universal Bonding Agent****Description**

KA&MELOCK KM 12 is an universal Bonding Agent developed for high temperature resistance Rubber/Metal bonding.

KA&MELOCK KM 12 bonds different rubber based on Polybutadiene (BR), Chloroprene Rubber (CR), Butyl (IIR), Polyisoprene (IR), Nitrile (NBR), Natural (NR) and Butadiene-Styrene Copolymer (SBR). With primer KA&MELOCK MP 05 give the bonding parts excellent corrosion temperature and glycol resistance.

The bonding system KA&MELOCK MP 05 + KA&MELOCK KM 12 give excellent result for high dynamical and high temperature stressed Rubber/Metal parts.

Technical Data*

Composition	Polymers and Fillers dispersed in Solvents
Colour	Black
Viscosity 4 mm DIN-Cup	45 - 70 s
Specific Gravity	0,95 – 1,01 g/cm ³
Flashpoint	24 °C
Solid Content	22 – 27 % by weight
Shelf life	24 Months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 12 can be applied by brush, dipping or spraying.

For the recommended wet coating thickness of approximately 70 - 100 µm, dry coating thickness of approximately 15 µm.

The following dilution is recommended:

Brush	Undiluted
Dipping	Undiluted or 20 % dilution with Xylene
Spraying	40 - 60 % dilution with Xylene

Important

Undiluted KA&MELOCK KM 12 must be thoroughly stirred prior to application to assure homogeneity.

Diluted product must be stirred continuously to avoid sedimentation (separation).

When dry, KA&MELOCK KM 12 forms a solid, dry, black film.

Coated parts can be stored for several weeks in a clean environment.

Safety / Hazard Information

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KA&MELOCK KM 14**Rubber/Metal-, Rubber/Textile- and Rubber/Rubber-Bonding Agent****Description**

KA&MELOCK KM 14 is a very universal Bonding Agent for low temperature vulcanization like 90 °C – 100 °C and normal temperature vulcanization (150 °C – 170 °C).

The system with primer KA&MELOCK MP 05 is excellent for tank lining and production of rubber rollers, rubber cylinders etc..

KA&MELOCK KM 14 bond also textile like polyester and polyamide on different rubber types Bromo-/Chlorobutyl Rubber (BIIR/CIIR), Chloroprene Rubber (CR), Chlorosulfonated Polyethylene (CSM), Ethylene Propylene Rubber (**EPDM**), Butyl Rubber (IIR), Polyisoprene (IR), Nitrile Rubber (NBR), Natural Rubber (NR) and Butadiene-Styrene Copolymer (SBR).

KA&MELOCK KM 14 bond uncured rubber to cured rubber based on Chloroprene Rubber (CR), Chlorosulfonated Polyethylene (CSM), Ethylene Propylene Rubber (**EPDM**), Butyl Rubber (IIR), Nitrile Rubber (NBR), Natural Rubber (NR), and Butadiene-Styrene Copolymer (SBR).

It is suitable for the production of gaskets.

Technical Data*

Composition	Polymers and Fillers dispersed in Solvents
Colour	Black - Green
Viscosity 4 mm DIN-Cup	80 – 120 s
Specific Gravity	0,93 – 0,97 g/cm ³
Flash Point	25° C
Solid Content	18 - 22 % by weight
Shelf life	12 months, in closed containers below 25 ° C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 14 can be applied by brush, dipping or spraying.

For the recommended coating thickness of approximately 15 – 20 µm.

The following dilution is recommended:

Brush	Undiluted
Dipping	Undiluted or 20 % dilution with Xylene
Spraying	40 – 60 % dilution with Xylene

Important

KA&MELOCK KM 14 is slightly thixotropic and must be agitated thoroughly before viscosity measurements are made.

The product must be thoroughly stirred before using. The adhesive may be applied by brushing, dipping, roller coating etc..

KA&MELOCK KM 14 is normally used full strength for brush and roller coating.

For dip application, normal dilution is 10 to 25 % by volume.

Drying the adhesive should be allowed 90 – 150 minutes at room temperature.

Drying times may be shortened by the use hot air drying ovens or tunnels.

Moderate drying temperature will be most satisfactory (70 °C – 80 °C).

Safety / Hazard Information

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**KA&MELOCK KM 16
Universal Bonding Agent****Description**

KA&MELOCK KM 16 is a very universal Bonding Agent.

When a high degree of corrosion and dynamic resistance is required, however, it should be applied in combination with KA&MELOCK MP 05 primer.

Even coating application with KA&MELOCK KM 16 provides good corrosion, oil and solvent resistance, the additional application of KA&MELOCK KM 16 + KA&MELOCK MP 05 primer particularly enhances corrosion and temperature resistance.

KA&MELOCK KM 16 is suitable for bonding of Polybutadiene (BR), Polychloroprene (CR), Ethylene Propylene Rubber (EPDM), Butyl Rubber (IIR), Polyisoprene (IR), Nitrile Rubber (NBR), Natural Rubber (NR) and Styrene Butadiene (SBR) to metals and plastics.

The combination of KA&MELOCK MP 05 + KA&MELOCK KM 16 is ideally suited for soft NR and NBR compounds in TM and IM production.

Technical Data*

Composition	Polymers and Fillers dispersed in Solvents
Colour	Black - Green
Viscosity 4 mm DIN-Cup	80 - 120 s
Specific Gravity	0,96 – 1,04 g/cm ³
Flashpoint	27 °C
Solid Content	24 – 28 % by weight
Shelf life	12 months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 16 can be applied by brush, dipping or spraying.

For the recommended coating thickness of approximately 15 µm.

The following dilution is recommended:

Brush	Undiluted
Dipping	Undiluted or 20 % dilution with Xylene
Spraying	40 – 60 % dilution with Xylene

Important

Undiluted KA&MELOCK KM 16 must be thoroughly prior to application to assure homogeneity.

Diluted product must be stirred continuously to avoid sedimentation (separation).

When dry, KA&MELOCK KM 16 forms a black - green film on the metal part, providing excellent corrosion protection.

Metal parts properly primed with KA&MELOCK KM 16 can be stored for several weeks in a clean environment.

Safety / Hazard Information

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KA&MELOCK KM 19
Universal Bonding Agent High Temperature and Dynamic Resistance**Description**

KA&MELOCK KM 19 universal bonding agent is part of a two-coat system, used in combination with KA&MELOCK MP 05 primer. It is not recommended to use without a primer.

KA&MELOCK KM 19 + KA&MELOCK MP 05 system is suitable for bonding Ethylene Acrylic Rubber (AEM), Polybutadiene Rubber (BR), Chloroprene Rubber (CR), Ethylene Propylene Rubber (EPDM), Ethylene Vinyl Acetate (EVA), Hydrogenated Nitrile Rubber (HNBR), Polyisoprene Rubber (IR), Butyl Rubber (IIR), Nitrile Rubber (NBR), Natural Rubber (NR) and Styrene Butadiene Rubbers (SBR), as well as Chlorosulfonated Polyethylene (CSM) to a variety of metals and plastics.

This system provides excellent corrosion, temperature and oil resistance.

Technical Data*

Composition	Polymers, Fillers and Isocyanate dispersed in Solvents
Colour	Black - Green
Viscosity 4 mm DIN-Cup	80 - 120 s
Specific Gravity	0,96 – 1,04 g/cm ³
Flashpoint	24 °C
Solids Content	24 - 28 % by weight
Shelf life	12 months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 19 can be applied by brush, dipping or spraying.

For the recommended coating thickness of approximately 15 µm.

The following dilution is suggested:

Brush	Undiluted
Dipping	Undiluted or 20 % dilution with Xylene
Spraying	40 - 60 % diluted with Xylene

Important

Undiluted KA&MELOCK KM 16 must be thoroughly prior to application to assure homogeneity.

Diluted product must be stirred continuously to avoid sedimentation (separation).

Treat metal parts chemically or mechanically. After the film has dried, bonds will develop between the rubber compounds and the coated parts during vulcanization.

Drying the adhesive should be allowed 30 minutes at room temperature.

Drying times may be shortened by the use hot air drying ovens (90 °C) or tunnels.

When dry, KA&MELOCK KM 19 bonding agent forms a solid dry black - green film.

Avoid storing coated parts for more than 1 – 2 days. Complete any further work on these parts within such time. Isocyanates are sensitive chemicals and can react with the humidity.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

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KA&MELOCK KM 22
Speciality Bonding Agent for Fluoro Rubber**Description**

KA&MELOCK KM 22 is formulated to bond all types of Fluoro rubber to practically any metal or plastic.

It achieves excellent temperature oil and gasoline resistance.

Technical Data*

Composition	Silane and Resin in Solvents
Colour	Brown
Viscosity 4 mm DIN-Cup	10 - 14 s
Specific Gravity	0,82 - 0,86 g/cm ³
Flashpoint	18° C
Solid Content	11 - 15 % by weight
Shelf life	9 months, in closed containers below 25 ° C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 22 can be applied by spraying, dipping or brush.
If dilution is needed, satisfactory results are usually obtained with dilutions of 1:1 using MIBK.
Dilutions of 10 parts MIBK to 1 part adhesive are possible.

For the recommended coating thickness of approximately 5 - 8 µm.

Important

Remove only as much KA&MELOCK KM 22 from the original drum as will be consumed during the next shift. Under no circumstances must unused material be returned to the original container!!! Generally, vulcanizing conditions (temperature, pressure, duration) recommended by the rubber supplier should be adhered to. Vulcanizing temperatures of 140 °C – 200 °C are preferable.

For post-curing of parts, temperatures up to 220 °C are acceptable, without any negative effect on bonding properties. The bond offers excellent temperature resistance.

Post-curing can be done at temperatures of to 220° C, but this should be reached gradually, not abruptly. For instance, 100° C – 120° C – 160° C – 180° C, each for 20 minutes; and then 8 to 10 hours at 220° C.

Avoid storing coated parts for more than one week. Complete any further work on these parts within such time.

Safety / Hazard Information

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KA&MELOCK KM 28
Speciality Bonding Agent for Silicone Rubber and Metals**Description**

KA&MELOCK KM 28 is a one-coat Bonding Agent formulated for bonding of Silicone Rubber to a wide range of metals, plastics and textiles.

An excellent bond is achieved, as well as excellent corrosion, oil and gasoline resistance.

Technical Data*

Composition	Silane in Ethanol
Colour	Transparent
Viscosity 4 mm DIN-Cup	7 – 11 s
Specific Gravity	0,80 – 0,85 g/cm ³
Flashpoint	18° C
Solid Content	5 – 7 % by weight
Shelf life	9 months, in closed containers below 25 ° C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 28 can be applied by spraying, dipping or brush.
If dilution is needed, satisfactory results are usually obtained with dilutions of 1:1 using Ethanol. Dilutions of 10 parts Ethanol to 1 part adhesive are possible.

For the recommended coating thickness of approximately 5 - 8 µm.

Important

Remove only as much KA&MELOCK KM 28 from the original drum as will be consumed during the next shift. Under no circumstances must unused material be returned to the original container!!! Generally, vulcanizing conditions (temperature, pressure, duration) recommended by the rubber supplier should be adhered to. Vulcanizing temperatures of 140 °C – 200 °C are preferable.

For post-curing of parts, temperatures up to 220 °C are acceptable, without any negative effect on bonding properties. The bond offers excellent temperature resistance.

Post-curing can be done at temperatures of to 220° C, but this should be reached gradually, not abruptly. For instance, 100° C – 120° C – 160° C – 180° C, each for 20 minutes; and then 8 to 10 hours at 220° C.

Avoid storing coated parts for more than 1 - 2 days. Complete any further work on these parts within such time.

For control to the film coating of KA&MELOCK KM 28, dyes can be added. Suitable dyes Savinyl Blue RS or Savinyl Orange RSL (Sandoz AG, Basel / Switzerland) are located. 1 kg of dye-containing adhesive used in concentrations of 1 g.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

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KA&MELOCK KM 36
One-Coat Bonding Agent**Description**

This product is a one-coat Bonding Agent for bonding Acrylic Rubber (ACM), Ethylene Acrylic Rubber (AEM "VAMAC"), Epichlorohydrin Rubber (ECO), Hydrogenated Nitrile Rubber (HNBR) and Nitrile Rubber (NBR) to Metal.

The bonding between metal and rubber occurs during the vulcanization process. The metal parts will be treated chemically or mechanically. After coated with KA&MELOCK KM 36 and drying the film, the bonding between rubber compounds and coated parts developed in the press during the vulcanization.

KA&MELOCK KM 36 used for production of sealing parts.

Technical Data*

Composition	Polymers in Solvents
Colour	Black
Viscosity 4 mm DIN-Cup	9 – 13 s
Specific Gravity	0,96 – 0,98 g/cm ³
Flashpoint	18 °C
Solids Content	20 – 26 % by weight
Shelf life	12 months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 36 can be applied by brush, dipping or spraying.

For the recommended coating thickness of approximately 15 µm.

The following dilution is suggested:

Brush	Undiluted
Dipping	20% diluted with MIBK
Spraying	50% diluted with MIBK

Important

Remove only as much KA&MELOCK KM 36 from the original drum as will be consumed during the next shift. Under no circumstances must unused material be returned to the original container!!! Generally, vulcanizing conditions (temperature, pressure, duration) recommended by the rubber supplier should be adhered to.

Vulcanizing temperatures of 140 °C – 200 °C are preferable.

For post-curing of parts, temperatures up to 220° C are acceptable, without any negative effect on bonding properties. The bond offers excellent temperature resistance.

KA&MELOCK KM 36 bonding agent must be thoroughly stirred prior to application.

When dry, KA&MELOCK KM 36 bonding agent forms a solid, dry, black film.

The metal parts coated with the binder should preferably be processed within a week.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

Phone number to call in case of emergency:

National Poisons Information Service

ANKARA: Emergency Phone: +90 312 114 (<http://uzem.rshm.gov.tr/>)

The above information and recommendations contained are based on our knowledge and experience. Beyond our control due to different materials and conditions of application for our products, processes and applications will be used when appropriate in order to make sure that we strongly advise that adequate testing is performed.

KA&MELOCK KM 36 W
One-Coat Bonding Agent**Description**

This product is a one-coat Bonding Agent for bonding Acrylic Rubber (ACM), Ethylene Acrylic Rubber (AEM "VAMAC"), Epichlorohydrin Rubber (ECO), Hydrogenated Nitrile Rubber (HNBR) and Nitrile Rubber (NBR) to Metal.

The bonding between metal and rubber occurs during the vulcanization process. The metal parts will be treated chemically or mechanically. After coated with KA&MELOCK KM 36 W and drying the film, the bonding between rubber compounds and coated parts developed in the press during the vulcanization.

KA&MELOCK KM 36 W used for production of sealing parts.

Technical Data*

Composition	Polymers in Solvents
Colour	Brown
Viscosity 4 mm DIN-Cup	9 – 13 s
Specific Gravity	0,96 – 0,98 g/cm ³
Flashpoint	18 °C
Solids Content	20 – 26 % by weight
Shelf life	12 months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Application

KA&MELOCK KM 36 W can be applied by brush, dipping or spraying.

For the recommended coating thickness of approximately 15 µm.

The following dilution is suggested:

Brush	Undiluted
Dipping	20% diluted with MIBK
Spraying	50% diluted with MIBK

Important

Remove only as much KA&MELOCK KM 36 W from the original drum as will be consumed during the next shift. Under no circumstances must unused material be returned to the original container!!! Generally, vulcanizing conditions (temperature, pressure, duration) recommended by the rubber supplier should be adhered to.

Vulcanizing temperatures of 140 °C – 200 °C are preferable.

For post-curing of parts, temperatures up to 220° C are acceptable, without any negative effect on bonding properties. The bond offers excellent temperature resistance.

KA&MELOCK KM 36 W bonding agent must be thoroughly stirred prior to application.

When dry, KA&MELOCK KM 36 W bonding agent forms a solid, dry, brown film.

The metal parts coated with the binder should preferably be processed within a week.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

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KA&MELOCK KM 40 C
Bonding Agent for Textile**Description**

Rubber to Textile Bonding Agents. KA&MELOCK KM 40 C gives by low vulcanization temperature like 120 °C also by high vulcanization temperature like 170 °C good bonding results.

KA&MELOCK KM 40 C bond textile like Polyamide (PA), Polyethylene (PE) and different rubber types Polybutadiene (BR), Chloroprene Rubber (CR), Ethylene Propylene Rubber (EPDM), Nitrile Rubber (NBR), Natural Rubber (NR) and Butadiene-Styrene Copolymer (SBR).

It is suitable for the production of gaskets.

Technical Data*

Composition	Polymers in Solvents
Colour	Black
Viscosity 4 mm DIN-Cup	10 – 14 s
Specific Gravity	0,96 – 0,98 g/cm ³
Flashpoint	26 °C
Solids Content	5 – 9 % by weight
Shelf life	12 months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

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KA&MELOCK KM 40 E
Bonding Agent for Textile**Description**

Rubber to Textile Bonding Agents. KA&MELOCK KM 40 E gives by low vulcanization temperature like 120 °C also by high vulcanization temperature like 170 °C good bonding results.

KA&MELOCK KM 40 E bond textile like Polyamide (PA), Polyethylene (PE) and different rubber types Polybutadiene (BR), Chloroprene Rubber (CR), Ethylene Propylene Rubber (EPDM), Nitrile Rubber (NBR), Natural Rubber (NR) and Butadiene-Styrene Copolymer (SBR).

It is suitable for the production of gaskets.

Technical Data*

Composition	Polymers in Solvents
Colour	Black
Viscosity 4 mm DIN-Cup	20 – 25 s
Specific Gravity	0,96 – 0,98 g/cm ³
Flashpoint	26 °C
Solids Content	10 – 18 % by weight
Shelf life	12 months, in closed containers below 25 °C.

*Data is typical and not to be used for specification purposes.

Safety / Hazard Information

Refer to the Material Safety Data Sheet (MSDS).

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