

TECHNICAL INFORMATION

Brantho-Korrux 3 IN 1

**FREE OF ZINC • LEAD
CHROMATES • AROMATIC
HYDROCARBONS • XYLENE**

One-component coating.

PRODUCT FEATURES

○ Semi-gloss	○ Excellent resistance properties
○ Rust prevention	○ Wide processing window for application
○ Metal protection	○ Low solvent content (modern 'High-Solid' coating)
○ Excellent adhesion and elasticity properties	○ Universally suitable (both as a primer or as a finish)
○ Excellent edge covering, filling and hiding power	○ Can be applied on practically all types of substrates
○ Excellent coverage and stability	○ Rapid touch dry time

RECOMMENDED APPLICATIONS

For the protection against corrosion of constructions, machines and transport vehicles in rural, urban, industrial and maritime areas.

- As a protective coating for new construction or maintenance.
- As both primer and topcoat. As a primer for 1-component and most 2-component finishes.
- For constructions built from several types of materials.
- As a substitute for toxic red-lead (tested by the German Railway authorities)
- For environmental unfriendly PVC/Chl. Rubber coatings, epoxy coatings (partly), simple and complicated alkyd coatings

Examples: transport vehicles and their components, machines, transport-racks, fences, platform structures, pipelines, cladding, gates, winter road clearance equipment, sea containers, high-tension towers, lorry chassis, building equipment, bridges, railway stations, shelters, cranes, boats, vessels, production halls, lighting columns, dumpers, cooling equipment.

EXAMPLE SUBSTRATES

Iron, steel, stainless steel, aluminium, copper, zinc, old coatings, rust, many hard plastics, glass, concrete, screed



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The information herein contained is based on our present knowledge. It is based on practical experience during many years and is composed carefully. The technical information is average, and values do not impose any liability. As the application of this material in any individual case is beyond our control we cannot be held liable. This information sheet is a translation of the German sheet 10/21. Please view our [terms and conditions](#).

DETAILED TECHNICAL INFORMATION

Product description Brantho-Korrux 3 in 1

Base	Polyester resins with environmental friendly, active, multi-phase rust-inhibitive pigments. Lead, chromate and zinc-free. Solvent free of aromatic hydrocarbons (e.g. xylene or toluene)
Colours	Other colours available from 25L (effect-colours from 30L) orders Without colour is a special production. It has all the functional pigments (no colour pigments). This can be applied as a clear-milk metal protection or can be coloured with suitable colorant pastes Colours can be mutually mixed unlimitedly. Colours which have not been produced originally ex-works, but have been coloured later on with tinting pastes, do not necessarily comply with all original specifications/
Effect colours	○ e.g. RAL 9006, 9007, DB 601, DB 701, DB 702 DB 703, BK096. Statements in our technical data sheet mainly refer to normal colours. ○ For aluminium and m.i.o. coatings not all data applies. These coatings can be applied in a thicker film (+50%) and will dry somewhat slower accordingly. They show better protection against corrosion – the optical impression strongly depends on the application method used (soaking wet=lighter; dryer=darker) and further factors (dry film thickness, temperature, spray distance, amount of paint on the roller, etc.). ○ These colours appear more alive, if they are not applied under exactly the same conditions. Keep the surface open longer with Spezial-Thinner; the effect pigments have to be able to float on the colour film. ○ Sticker-off-effect: special mixture, that reduces the adhesive strength of self adhesive stickers extremely (except soaked paper stickers). It does not harm the adhesion when it is overcoated.
Colour resistance	We use colour-pigments with extreme high light-fastness and weather resistance that are also used in the automotive industry. Never the less, there are differences in colour resistance between colour shades: ○ Exceptionally resistant: Effect- (A1 acc. to BfS 26*), white colours (A2) ○ High resistance: Grey-colours (also grey white; A2) ○ Resistant: Blue, green colours (A2) ○ Adequately resistant: Yellow, orange and red colours (A2)
Gloss	Semi-gloss (25-55% depends on colour) Different degrees of gloss from 25L/30L orders per colour or can be achieved by mixing with the following products: ○ Nitrofest Lower gloss ○ Haftgrund Spezial (HgS): Lower gloss ○ Robust-Lack Higher gloss ○ 3 in 1 Gloss Additiv Add up to 15% of volume Higher gloss up to +20%
Solid content	Approximately 70% (by wt.), appr. 53% (by vol.)

* German Federal Committee for Colour and Property Protection, Leaflet 26

VOC value	< 400 g/ltr. ready for application ○ Addition of 5% 3 in 1 Härter-Konzentrat (activator conc.) brush- and roller ready. ca. 405 g/ltr. ○ Addition of 10% 3 in 1 Härter-Konzentrat (activator conc. Airless-ready ca. 415 g/ltr. ○ Addition of 3% Brantho-Korrux Kombi-Thinner. Airless-ready. ca. 420 g/ltr. ○ Addition of 7% Brantho-Korrux Kombi-Thinner. Air-atomised spray ready. ca. 440 g/ltr. ○ Addition of 15% Brantho-Korrux Kombi-Thinner. Small tip-sizes, low. temp. ca. 490 g/ltr. ○ with 3 in 1 Komfortdose, high-build spray can, incl. gas. Spray can-ready. ca. 510 g/ltr.
Viscosity	Appr. 150 sec. (DIN 4mm)
Coverage	8,8 m²/l. at 60µm (theoretical)
Packaging sizes	○ 5L cans with material-saver lids. ○ 750ml : cans (8 or 16 per carton). ○ 10L and 25L : cans on special order (1 week production time).
Density	1.2–1.5 depending on colour
Storage stability	○ 24 months starting from date of production. Unopened cans in cool, dry conditions. ○ Ideal temperature for paint cans is between 10–20°C. 25°C+ will shorten storage stability. ○ Frost will not normally harm the product. ○ The tenability indication of the cans implies the warranted tenability in unopened, original cans, in a cool, well-ventilated dry storage area. ○ The indicated tenability is NOT an expiry date. Under normal conditions the coating may be used up to five years without loss of quality. ○ Please use older cans first. ○ As long as the coating material can be stirred homogeneously, it can be applied without problems.
Thinning	Short drying time: Brantho-Korrux Kombi-Thinner Retarded initial drying: Brantho-Korrux Kombi-Thinner Also suitable: Nitro-, combi-, 2C-thinner or similar Less suitable: Alkyd thinner, white spirit NOT suitable: Water

DETAILED APPLICATION INSTRUCTIONS

Pre-treatment Substrates	A stable substrate is a prerequisite for a durable coating (St 2). For advanced exposures use Brantho-Korrux 2-Kompo as primer. Iron and steel: ○ Remove rust scale, loose millscale or similar ○ Clean from oil, grease and other impurities Rusted steel ○ Remove loose rust/rust scale. ○ Possible contamination such as oil, grease, salts, detergents must be removed fully. Stainless steel, aluminium, light- and nonferrous metals: ○ Slightly abrade e.g. Scotch-Brite® or similar; NEVER use steel fibre ○ Degrease and clean. Adhesion promoter or primer is not required Plastics: ○ Clean and degrease
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Pre-treatment Substrates continued.	Weathered galvanized steel: ○ Degrease and clean with water. ○ Remove loose matter, especially zinc salts/white rust,rinse with plenty of fresh water. New galvanized steel: ○ Slightly abrade (plastic fibre embedded abrasive,e.g. Scotch-Brite® or similar,. ○ NEVER use steel fibre. ○ Degrease and clean by using a water-based cleaner/degreaser, e.g. Multiclean. ○ Rinse with plenty of water.
Preparation	○ Stir well before application by hand or machine. ○ Try to avoid air penetration while stirring. ○ Shake high-build aerosol-can,if using, well before application. ○ Check colour ○ Do not mix with other substances than indicated by manufacturer ○ Fresh air can create thin skin on the surface inside the can. Do not stir it in, remove it, then dry and dispose responsibly. ○ Cans, if possible, should always be kept closed. ○ If you intend not to use the paint for a longer time, pour some thinner on the surface. ○ Ideal application temperature: 15–25°C. Possible application temperature: -10 to +30°C ○ At very low temperatures apply “warm” paint (20 °C) or add some thinner. ○ Minus temperatures increase drying time and flow properties will reduce. ○ Do not apply on ice or frost.

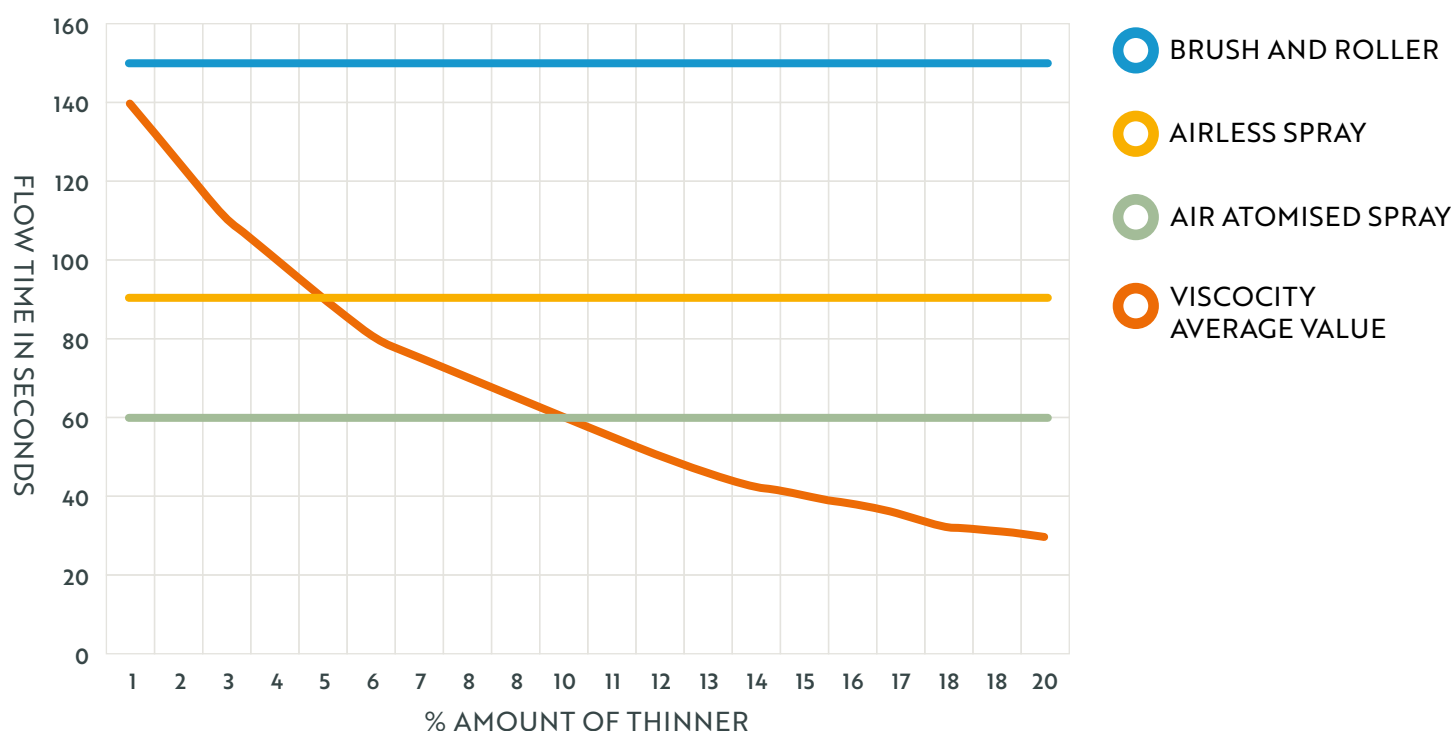
Application processing

Type	Nozzle	Pressure	Standard colours				m.i.o.	
			Small objects		Large objects		Large objects	
			Thinner	Viscosity	Thinner	Viscosity	Thinner	Viscosity
Brush	–	–	None	Ready to use	None	Ready to use	None	Ready to use
Roller	–	–	None	Ready to use	None	Ready to use	None	Ready to use
Airless-spray	0.4-0.6 mm	Minimum 160 bar	–	–	+3,5%	80-100 sec.	+appr. 3%	ca. 120 Sek.
	0.5-0.7 mm		–	–	+ca. 3%	80-100 sec.	+appr. 3%	ca. 120 Sek
	0.6-0.8 mm		–	–	None	Ready to use	None	Ready to use
Air pressure spray	1.4-1.7 mm	4-5 bar	+10-15%	30 sec.	–	–	–	–
	2.0-2.5 mm		+appr. 10%	30-60 sec.	+appr. 10%	30-60 sec.	+8-10%	60-80 sec.
	2.5-3.5 mm		–	–	+appr. 3%	80-120 sec.	+appr. 3%	ca. 120 sec.

Airmix	0.2-0.5 mm approx 40°	90/3 bar	+5-8%	60-90 sec.	+5-8%	60-90 sec.	+appr. 5%	ca. 90 sec.
HVLP	1.6-3.5 mm	5/1 bar	+appr. 15%	Appr. 30 sec.	+appr. 15%	ca. 30 sec.	+appr. 10%	30-60 sec.
Dipping	–	–	+15-25%	20-35 sec.	+15-25%	20-35 sec.	–	–
HS spray can	Diverse	–	None	Ready to use	None	Ready to use	None	Ready to use

The viscosity data refer to a measurement in a DIN 4mm cup with Kombi-Thinner. For dipping measurement is carried out with butyl acetate. Please DO NOT USE Kombi-Thinner here. Ready to use viscosity is at appr. 150 sec. (DIN 4mm) The Komfortdose (high-build spray can) is used for touch-ups on small and large objects and is not intended for full-surface painting. The table above represents empirical values for material adjustment. The instructions of the appliance suppliers must be observed.

Change of viscosity when adding Brantho-Korrux Kombi-Thinner



Brush application	○ Apply material with standard round, oval or flat brushes. A dry film thickness of 40-80µm per layer can be achieved. ○ After 1-2 hours the next layer can be applied. ○ Colours containing micaceous iron oxide (m.i.o.) achieve a dry film thickness of 60-120µm per layer (e.g. RAL 9006, RAL 9007, DB 601, DB 701, DB 702, DB 703, BK096.)
Roller application	A short nap synthetic roller is recommended (up to 12mm nap; suitable for 2-component coatings) ○ Dry film thickness of 40-60µm per layer can be achieved. ○ DO NOT use foam rollers.
Spray application	When spraying a dry film thickness from 50-150µm (large objects, airless) can easily be achieved.

Selection of the appropriate airless filter	Filter colour	Type of lacquer	Mesh cm ²	Size	Opening
	Red	Very low viscosity lacquers	180	0.084 mm	0.15-0.35 mm
	Yellow	Normal to high-build coatings	100	0.14 mm	0.3-0.5 mm
	White	Zinc-rich and m.i.o. coatings	50	0.32 mm	0.4-0.65 mm
	Green	Heavy materials alike bitumen	30	0.5 mm	From 0.7 mm

Electrostatic spray	3 in 1 can be applied with airatomised-, airmix- and airless- electrostatic spray equipment. The material shows an electrical conductivity of > 100 k-Ω.		
	Type	Viscosity	Electrical resistance
	Ready to use	Approximately. 150 sec.	1500-2500 k-Ω
	Airless viscosity	80-90 sec.	1000-1800 k-Ω
	Airmix viscosity	80-90 sec.	1000-1800 k-Ω
	Air-atomised viscosity	30-35 sec.	1000-1500 k-Ω
On request (minimum 25L at special price) the material can be delivered a customer specification (please give us the viscosity and electrical conductivity you wish). Dilute according to equipment manufacturer's specifications. Aluminium and micaceous iron oxide cannot be applied with standard electrostatic equipment values. ○ RAL 9007= appr. 3000 k-Ω in ready to use viscosity, airless appr. 2000 k-Ω, air-atomised appr. 1500 k-Ω ○ RAL 9006= appr. 20000 k-Ω in ready to use viscosity, airless appr. 18000 k-Ω, air atomised appr. 10000 k-Ω; adjustment by manufacturer not possible.			

Structure	Because of its technological properties 3 in 1 paint finish is not completely smooth. According to the application-methods and conditions one may achieve a more or less structured surface. Due to a stronger structure, more uneven substrates can be covered particularly well. 3 in 1 surfaces do not have the same hardness as with 2K-structure coatings. Moreover, drying time is clearly extended, when spraying structure (higher dry film thickness). ○ Apply undiluted. ○ Type and intensity of structure relies on nozzle size, pressure and spraying distance to the object.
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High-build spray can	Our high-build spray cans (Komfordose) are filled in spray cans WITHOUT solvent addition and therefore maintain the ability to apply thick layers. ○ CO₂ neutral pressurized gas. ○ Up to 120µm for one layer. ○ Retains all of the characteristics of 3 in 1. ○ Low stress to human and environment.
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High-build spray continued.

Application:

- Shake can vigorously
- Distance to object 20-30cm.
- Apply smoothly at right angles (do not wag)
- Hold can vertically.
- DO NOT apply in windy conditions (mask adjacent areas).
- Ensure sufficient layer thickness at corner, edges, angles, holes, etc.
- If necessary, prepare with another contrasting colour (e.g. RAL 7038).
- When applying several layers, allow flash off in between.
- For good adhesion (especially on difficult substrates), a thick layer is important.
- For high-quality corrosion protection, apply one can to a maximum area of 1 x 0.25 mtr.
- For lower demands, apply to max. 1 x 2 mtr.
- Possibility to overcoat universally on request (please test on a small area to rule out sensitivities of the topcoat with regard to temperature and film thickness).
- To clear the nozzle After use, briefly spray upside down.
- Please recycle empty cans. Non-empty cans are contaminated waste. Do not dispose of in wastewater. Waste identification number 150110

Recoating

3 in 1 can be recoated unlimitedly with itself (abrading/sanding not necessary). If required, 3 in 1 can be recoated with all (tested) sorts of one-component coatings and with several (tested) two-component coatings.

Overview of recoat intervals (20 °C/ 65% rel. hum.)

Primer	Top coat	Minimum	Ideal
3 in 1	3 in 1	15 min.	> 1 d.
	Robust-Lack	15 min.	> 1 d.
	S-Glasur	30 min.	> 8 h.
	Alkyd-paint	30 min.	> 6 h.
	Water-based	2 h.	> 12 h.
	Nitro-cellulose	5 h.	> 3 d.
	2-K-acrylic	12 h.	> 3 d.
	2-K-epoxy	24 h.	> 3 d.
	2-K-epoxy-high build (fast drying)	--	--
	Adhesion primer with solid content < 10%	--	--
	2-K-PUR	16 h.	> 3 d.
	PVC (vinyl)	15 min.	> 1 d.
	Topcoat acc. to TL 918300 T2 letter 75, 77	2 h.*	> 1 d.
	Putty	See curing of respective putty	See curing of respective putty
Putty	3 in 1	--**	--**
Sealing compound	3 in 1	--***	--***

- * Due to the aggressive nature of the solvents of TL-topcoats a 24 hours interval is recommended, in order to prevent resolving or bleeding.
- ** Applying putty on top of 3 in 1 is not recommended (too flexible for 1-C putties and too strong attack by styrene containing 2C „polyester“ putties. Better suitable are Nitrofest, 2-Kompo®, Ecobase or Adhesion primer HgS.
- *** Special sealing compounds of car-bodies or sealings containing silicon cannot be coated with 1-C coatings (read their remarks). You should use 2-C coatings instead (e.g. 2-Kompo or 2K-Flexi-Lack).

Dipping	Due to its basic properties, drying time, recoatability, environmental acceptability, Brantho-Korrux 3 in 1 is suitable for dipping: ○ Low sedimentation tendency and long service life in the basin. ○ Stir the contents of the dipping vessel continuously at very low speed (once or twice a day). ○ The yearly consumption should be minimal twice the content of the vessel.
Substrates	3 in 1 can be applied on iron, steel, stainless steel, aluminium, copper, zinc, old coatings, rust, many hard plastics, glass, concrete, screed etc. Iron und steel: ○ Apply on a clean and dry substrate. ○ Depending on exposure apply one or more layers by brush or roller. ○ For spray application dilute according to the list on page 3. ○ The service life increases at thicker total dry film thickness. In practice one up to the coats are recommended, depending on exposure. ○ On vertical objects a dry film thickness between 40 to 150µm without sagging can be easily applied (depending on application method). Rusted steel: Brantho-Korrux 3 in 1 penetrates into the remaining rust. To prevent further corrosion of such a rough substrate, apply a sufficient layer. Stainless steel, aluminium, light metals: Apply normal thickness (not too thin). Adhesion test: please note that optimal adhesion is achieved after three days or more. Plastics: ○ Check compatibility by applying a test area of 3 in 1. ○ On most plastics 3 in 1 is excellently suitable (e.g. ABS, GRP, PS, PC, hard-PVC, hard-PUR). ○ Not suitable substrates are „soft plastics, e.g. PE, PP, soft-PUR and soft-PVC. Plexiglas® (acrylics) and Polystyrene may dissolve, but can be coated. ○ 3 in 1 offers excellent adhesion on all tried and tested insulating foams (on the foam, as well as an adhesion promoter to the substrate). Weathered galvanized steel: Apply sufficient film thickness on already rusting and consequently rough substrates. New galvanized steel: ○ Only apply on a well-prepared, clean and dry substrate (see pre-treatment section) ○ Apply sufficient film thickness (mind. 60µm dry) ○ For advanced exposures prime with Brantho-Korrux 2-Kompo or Haftgrund-Spezial.

Substrates continued.	Further substrates: ○ Wood: possible, due to its elasticity, if a permeable coating is not required. ○ Glass: very high adhesion. ○ Concrete: 1:1 mixture with nitrofest is recommended. Apply diluted (15-20%) in advance ○ Powder coating: properly applied powder-coatings can be painted with 3in 1 (due to various qualities, a confirmed recommendation is not possible). ○ Anodised: very high adhesion. In order to obtain a proper film thickness we recommend priming with Haftgrund Spezial.	
If required Use of hardener:	Standard colours: 3 in 1 Härter-Konzentrat m.i.o. colours: Brantho-Korrux Quick-Härter-Konzentrat ○ Minimum temperature should be above 15°C. ○ Only recommended for topcoats (not recommended for primers). ○ Pot life (time to apply mixture) is around 16 hours. ○ When a harder surface is required we advise to apply Brantho-Korrux 2-Kompo or Anti-Graffik. ○ 3 in 1 is air-drying and is usually applied without hardener.	5-10% 5-10%
Drying 20 °C/ 65% r. h.	Touch dry	20-30 minutes
	Fully dried	Approximately 8-10 h.
	Fully cured	Approximately 3-4 days
	Fully durable	Approximately 7-10 days
Baking or forced curing (heat) is NOT POSSIBLE. The actual drying times depend on film thickness, ventilation, temperature, relative humidity, etc. At higher temperatures the drying speed increases, NOT the curing (dry hard) time. Thicker coats can easily be applied in one coat, however, this will cause a considerable increase of the drying time. 3 in 1 reacts thermoplastic during a few days after application and cannot be abraded. Thicker coats or several coats applied in a short period of time will cause a general increase of the total drying time. It is recommended to apply a thin coat first, followed by a thicker coat (not the other way around) The drying mechanism of 3 in 1 causes the adhesion to increase even after approx. three days (completely dry). During this drying period, objects cannot be stacked or packed, as blocking will occur. If applied as a primer 3 in 1 may be mixed with Nitrofest which reduces the effect (semi-matt finish). Long-term exposure to liquids (e.g. rain on horizontal surfaces) may cause moisture stains during the curing (up to five days after application). 3 in 1 Hardener shortens the drying times (see chapter Application/Processing). This also increases the mar resistance of the surface. Extensive information regarding disposal, health and safety is available from the safety data sheet.		

APPROVALS AND RESISTANCES

Brantho-Korrux 3 IN 1

The following lines provide an overview of the tests carried out and approvals obtained. If required, a test catalogue with all tests and details can be provided.

	TÜV-APPROVED 3 in 1 successfully passed all corrosion resistance tests for lead- and chromate free coatings by TÜV.		FOOD CONTACT ○ 3 in 1 can be used for application of the inside of storage tanks and processing equipment for food products, according the directions of German Ministry of Health (XL), (tested by the approved laboratory of Dr. Kittel 01/1989) ○ 3 in 1 meets the requirements under normal or predictable conditions of use, no components change the composition of food or bring out a deterioration in the organoleptic characteristics thereof (DEKRA-test April acc. Art.3 paragraph 1c VO 1935/2004 EWG from April 2015)
	DB-APPROVED (GERMAN RAILWAYS) Approved for protection of steel-constructions. Extensively tested as substitute for: ○ Red-lead primers (approved) acc. to TL 918300 T2 (mat.-no. 672.05) ○ PVC-coatings (tested) acc. to TL 918300 letter 77 ○ 2K-Epoxi-coatings (partially tested) acc. to TL 918300 letter 87		TOYS (SALIVA AND PERSPIRATION) ○ 3 in 1 may be used for playground equipment of toys, on which normally is chewed or sucked, and direct contact with the skin occurs (tested according DIN 53160, the test solutions showed pH values between 2,4 und 8,8; Institut für Korrosionsschutz, Dresden 10/1993 + 10/2010) ○ A new stricter test according DIN EN 71-3 (security of toys), meets the requirements again (Institut für Lacke und Farben, Magdeburg 2013/14)
	BAST/ZTV-KOR-DIRECTIVES The regulations for release have been checked and fulfilled: ○ Conformitation tests according to DIN-EN-ISO 12944 respect. DIN 55928 have been achieved by ○ MPA-NRW ○ Own manufactural inspection (for each charge of production) ○ Check tests (at purchaser's expense) can be requested at any time ○ All our cans with the Ü-mark are approved as construction products (corresponding resp. ÜZVO) ○ Taking averages for an inspection certification (resp. 8.2.3.3.) can be requested by every ○ Purchaser (at his own expense)		ECO-AUDIT 3 in 1 is manufactured according the EMAS-directives and respect. DIN-ISO 14001



ANTI SLIP PROPERTIES

For stairways, floors, etc. we recommend the application of RAL 9007, DB 703 or DB 601 (or mixtures

with these colours), roughness of the dried coatings provides a non-skid effect (Material Prüfinstitut Hellberg, Adendorf 01/2011).

Measuring results 3 in 1 RAL 9007:

- DIN 51130/BGR181 (production rooms and areas): R12
- DIN 51097/GUV-I8527 (high humidity rooms barefooted): C

For increased anti-slip properties with other colour shades (R11), Brantho-Korrux Slide-Stop Additiv can be used.

Please follow the processing instructions in the corresponding data sheet.



HEAT RESISTANCE

- -50°C to max. 300°C
= no significant loss of quality
- From approximately 120°C
= colour discolouration with no further loss of quality
- Temperature-shocks
= no negative influence

Colour shade recommendation (if higher shade stability is required):

- < 120°C All available shades
- 120-200°C Dark shades
- 200-250°C RAL 3009, RAL 9006, RAL 9005, RAL 9011
- 250-300°C RAL 3009



ELECTROSTATIC CONDUCTIVITY

The electric conductivity is sufficient to make the product suitable for e.g. petrol storage tanks exteriorly:

- RAL 7032 = 0.04 x 106 k-Ω
- RAL 9006/9007 = 0.02 x 106 k-Ω



WATERWAY SIGNALISATION (WSV-APPROVAL)

3 in 1 is approved for floating waterway markings (special department of the WSV for transport technologies, Koblenz 09/2001; conformity declaration)



FURTHER DIN TESTS

A detailed overview with further test results may be provided on request, it contains e.g.:

- Cross-Cut test (DIN 53167, 50021 SS, 53210, 53209)
- Continuous Condensation
- Water test (DIN 50018 KFW 2,0 S, 50018 SFW 0,2S, DB-TL)
- Stone-chip resistance (DIN 53154)
- Abrasion resistance (DIN 53233)
- Elongation (DIN EN ISO 1519)
- Elasticity (DIN EN ISO 1520)



REACTION TO FIRE ON BUILDING MATERIALS AND COMPONENTS

- Metals are classified in building Baustoffklasse A1/A2 without and with organic coating. On other substrates, Baustoffklasse B2 applies. The main factor influencing flammability is the substrate.
- DIN 4102-1



PRODUCTCODE FOR COATINGS GISBAU:

- Primer, pigmented, solvent based, free of aromatic hydrocarbons: M-GP02
- Coating, solvent based, aromatic free: M-LL01

VDL-RL 01 CLASSIFICATION: COATINGS FOR THE BUILDING INDUSTRY

Metal protection, corrosion resistant primer, semi-gloss top-coat, free of aromatic solvents.



DECOPAINT DIRECTIVES/LIMITATION OF EMISSIONS. EU DIRECTIVE 2004/2

The major areas of application of Brantho-Korrux 3 in 1 are not subject to above mentioned regulations.

Within the regulations the major areas of application are:

- IIIi (bzw. IIAi) One-Component-special-coating, Metal-high-build coating (building).
Professional indication 2004/42/IIA(i) 500 (2010) 500
 - II2e (bzw. IIBe) One-Component-coating, underbody protection coating (vehicle repair).
Professional indication: 2004/42 IIB(e) 840 (2010) 840
- Further areas of application that fit with 3 in 1:
- II1d (bzw. IIAAd); 300g/l Full hiding coating for interior and exterior limits, interior coating
 - II1g (bzw. IIAg); 350g/l Primer for iron, steel and aluminium, corrosion resistant coating, chassis and under body protection
 - II1j (bzw. IIAj); 500g/l Two-component special coating
 - II2c (bzw. IIBc); 540g/l primer and intermediate coating, base coat, intermediate coating, adhesion primer
 - II2d (bzw. IIBd); 420g/l top coat, protective coating, one- or multi-coat coating

VOC proportions for further calculation can be found above in the section „Detailed Technical Data“ under the item VOC value.



CHEMICAL RESISTANCE (ACC. TO DIN 53168-B)

Resistance against many substances was testes successfully. Below you will find a small overview.
A more detailed overview is available on request.

Transformer oil (up to +60°C)	Diesel oil Heating oil	gear oil (up to +80°C)	Hydraulic oil (up to +80°C)	Chain oil	Grease
Sodium chloride solution (5%)	Circular water resources (ph 8-11)	acetic acid (1.5%)	Ethyl alcohol (10%)	Molasses	Various antifreeze agents (e.g. VW-Audi Glykol 100%, Glythermin NF 50%)
Pigeon excrement	Universal lubricating grease	Household chemicals	Sea water	Wooden brew	Mineral oil test mixture A20/NPII



NORSOK TEST M 501 CORROSION PROTECTION TEST

3 in 1 (3x100µm) meets the requirements of the most demanding corrosion protection test:

- Edition 6, System 1, Corrosion protection, October 2013 by COT) during 4.200 hours severe exchange test with scratch (UVA, +60°C, -20°C, condensation, salt spray test, etc.



EMISSION CLASS FOR INDOOR AIR (FRENCH CLASSIFICATION)

3 in 1 was classified with an A+ (values are even app r. 85% below the strict A+ limits)

Scale from C (=high emissions) to A+ (=very low emissions).

Degree of emissions of volatile substances into the room air which may represent a toxic hazard is measured.

Always ventilate well during and after application in enclosed rooms.



APPROVALS FOR STEEL CONSTRUCTIONS AND EQUIPMENT (Ü-MARK)

3 in 1 is approved for the erection, modification and maintenance of building constructions following Ü-mark:

- Concerns all Corrosion Classes and practically all Coating Systems acc. Din 55928 T5 Tab. 4.
- Concerns NOT extreme special chemical exposures (acc. Remark 2).
- When using for O.E.M. or shop application please note high elasticity of 3 in 1 (compared to 2-C systems).

Approval as als primer:

- Applied on all blasted or manually prepared, slightly rusty steel substrates (approved pre-treatment: SA 2, SA 2,5, SA 3, St 2, St 3).
- Substitutes all primers acc. DIN 55928 T5 Tab. 4.
- Equivalent for red lead primers (acc. Part 3.3.2.1 of DIN 55928 T5).

Approval as topcoat (intermediate and finish):

- Substitute for alkyd resin, Alkydresin-combinations, Epoxy-ester, Vinyl-chlorid-copolymer (PVC), Chlorinated Rubber acc. DIN 55928 T5 Tab. 4.



EU DIRECTIVE REQUIREMENTS

- Electronic equipment 2011/65 and 2015/863/EU RoHS
- Tinn organic 76/769/ EWGcompounds
- Dangerous substances 2003/11/EG
- PAK 2005/69/EG
- PFOS 2006/122/EG
- End-of-life vehicles (2000/53/EG
- REACH 1907/2006/EG
- Also: car industry ILRS-Liste



MINING APPROVAL

§ 4 Abs. 1 No. 2 GesBergV, substance main group 4, Stoffuntergruppe 1, Lfd.-No. 42 AZ: Hygiene Institute A 108 395-03-To



APPROVAL FOR STEEL SUBSTRATES (VOB/DIN 18363)

3 in 1 is approved for all sorts of steel substrates and suitable for application on most metal substrates or application according to DIN 55938 Part 5 Tab. 5 (Duplex-Systems)

Excellent practical results are available.

DIN 55928 Part 5 Table 6 (Water engineering with steel) see 2K-Durasolid.



DAIMLER-CHRYSLER RELEASE

3 in 1 has been accepted by the areas of business for vehicles of the Daimler Chrysler AG for the inside layer of mineral and hydraulic tanks.
Daimler-Chrysler, Stuttgart 09/1999.



DIN
EN ISO
12944

CORROSION PROTECTION

3 in 1 is qualified according to DIN EN ISO 12944-6 for all six corrosion categories:

- On steel (SA 2,5) and hand prepared steel (St 2)
- In atmospheric conditions
- Approved for initial protection of steel substrates (Part 5.1.2.1)
- For maintenance of previously coated substrates (Part 5.1.2.2)
- Approved that it does not contain toxic or carcinogenic substances
- Approvance of 1 Component properties and low VOC-content at the same time
- Suitable as primer, intermediate and topcoat
- Suitable for interior (R), urban- (L), industrial- (I) and marine- (M) atmosphere
- Suitable for following exposures in the open air: chemical (Ch), sprinkler-salt/sand, grit and exhaust fumes
- Suitable to be applicated in the open air as well as in confined areas on accessible and inaccessible surfaces (for special chemical exposures in confined areas 3 in 1 can be applied as a primer and can be covered with special, chemical resistant, 2-Component coatings; e.g. Brantho-Korrux 2K [Anti-Graffik](#)).

Corrosion category	C1				C2				C3				C4				C5				CX
	Very mild				Mild				Medium				Severe				Very severe				N/A
	L	M	H	VH	L	M	H	VH	L	M	H	VH	L	M	H	VH	L	M	H	VH	N/A
Life expectancy in years	<5	<15	<15	<25	<5	<15	<15	<25	<5	<15	<15	<25	<5	<15	<15	<25	<5	<15	<15	<25	<25
Dry film thickness in µm	<60	<60	<60	<60	<60	<80	<160	<160	<80	80-160	160-240	<240	80-160	<160	<240	<320	160-240	160-240	240-320	<400	<400
Number of layers	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	5
Atmosphere	✓ Inside × Outside				✓ Inside ✓ Outside				✓ Inside ✓ Outside				✓ Inside ✓ Outside				✓ Inside ✓ Outside				✓ Inside ✓ Outside
	Inside: Heated buildings in neutral atmosphere. Offices, stores, schools, hotels.				Inside: unheated buildings. Outside: Rural areas.				Inside: production rooms with high humidity. e.g. laundries, breweries, dairies. Outside: City and industrial.				Inside: chemical plants, swimming pools. Outside: industrial and coastal with moderate salt load.				Inside: constant condensation. Outside: industrial and coastal with high salt load.				Inside: extreme condensation. Outside: offshore buildings.

One coat resp. a.d.f.t. of 80µm In order to achieve the expected lifetime in the corrosion catagories we recommend listed d.f.t. on iron and steel. Rough, uneven substrates need if necessary a thicker layer. With high layers, curing of 3 in 1 can take a very long time (the faster the layers follow each other, the massively longer the curing).

To achieve faster curing use 2-Kompo, Rostschutz-Mennige (Rmb) or Haftgrund Spezial (HgS) as primer and/or intermediate coat. For galvanized steel surfaces we recommend priming with [Brantho-Korrux 2-Kompo](#) (the total layer thickness can then be reduced by one layer). For special surface needs, other top coats can be used. For longer-term exposures under water (fresh water, sea water, brackish water, ground soil) we recommend to use only 2K [Brantho-Korrux Durasolid](#).