

# Technical Information and Application-instructions for

## Brantho-Korrux "3 in 1"

### Description:

**Brantho-Korrux "3 in 1"** is a 1-component, semi-gloss coating with very good adhesion properties and elasticity. Low solvent content, active rust-inhibitive pigments, excellent hiding power, both suitable as a primer or a finish. Excellent resistance properties, German approval for food contact, can be applied on practically all types of substrate, good filling properties, good edge covering and fast drying. Meets the requirements of DIN EN ISO 12944 and DIN 55928.

### Recommended areas of application:

Protection against corrosion of structures, machines and transport vehicles made from iron, steel, stainless steel, aluminium, zinc (galvanised) and other non-ferrous metals, hard plastics, etc. in rural, urban, industrial and maritime areas. As a protective coating for new construction or maintenance, both primer and topcoat, as a primer for 1-component finishes and most 2-component finishes. Ideal for constructions built from several types of material.

As a substitute for toxic red-lead (tested by the German Railroad authorities), as a substitute for environmental unfriendly PVC /Chl. Rubber coatings (IKS tested), partly as a substitute for epoxy coatings and complicated acrylics and as a high performance alternative for alkyd coatings.

### Practical examples:

For example road-gritters, sea containers, high-tension towers, lorry chassis, building equipment, bridges, cranes, vessels, boats, cladding (both coated or bare), railway stations, platform structures, fences, gates, production halls, pipelines, storage tanks, gutters, cooling equipment, and many other objects.

### Manufactured by:

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## Technical information

- o **Product description:**  
Combination of various Polyester resins combined with environmental friendly, very active, multiple-phase rust-inhibitive pigments, lead-, chromate and zinc-free. Solvent combination is free of aromatic hydrocarbons like xylene or toluene.
- o **Viscosity:** 140 sec. / DIN 4 mm
- o **Thinning:**
  - Branth's Kombi Thinner (short drying time)
  - Branth's Spezial-Thinner (retards initial drying)
  - Nitro-thinner and or 2-C thinners may be used (check compatibility)
  - White spirit, etc. are not suitable
- o **Density:** 1.1-1.4 depending on colour
- o **Solids:** 68% (by weight)  
52% (by volume)
- o **VOC-value** < 420 g/l.
- o **Coverage:**
  - theoretical: 8,5 m<sup>2</sup>/l. at 60 µm dry
  - practical: depending on application losses, surface roughness, porosity etc.
- o **Gloss:** 20-50% according NCS,  
(depending on colour)
- o **Colours:** See colour card.  
Other colours can be mixed upon request.
- o **Resistance:** see page 7
- o **Storage stability:**  
24 months in unopened, original cans, in a well ventilated dry environment.
- o **Packaging sizes:**
  - 750 ml cans
  - 5 l. cans with "material-saver" lids
  - 10 l. and 25 l. cans on special order  
(1 week production time)
- o **Recommended dry film thickness:**  
60 µm; minimal 2 coats of 60 µm each, totals 120 µm dry film thickness.

## Application instructions (brief)

- o **Suitable substrates:**  
Iron- and steel constructions properly degreased and free from rust crusts and mill scale. Manually prepared rusted surfaces (min. St 2), wet blasted substrates and flash-rust are acceptable. Equipment build from various types of metal like iron, steel, galvanised steel, aluminium and other non-ferrous metals, G.R.P., hard-PVC, wood etc. Can also be applied to other well adhering coatings and many other substrates.
- o **Temperatures:**  
ideal application temperature: +15°C to +25°C  
possible application temperature: -10°C to +30°C
- o **Application:**  
Brush and roller application without dilution;  
Air atomised spray: 30-35 sec. tip size 1.2 – 1.8 mm; a larger opening requires less dilution;  
Airless spray: viscosity 90 - 120 sec./ DIN 4 mm at minimal 180 bar, orifice size 0.017 – 0.019"; spray-angle 40 - 80°, only dilute if necessary (at low temperatures).
- o **Drying:**  
(at 20°C and 65% relative humidity)
  - touch dry: after 20-30 minutes
  - to recoat: after 90 minutes  
no need to abrade before overcoating
  - dry to handle: ± 100 minutes
  - completely dry: ± 8 - 10 hours
  - optimal adhesion and stacking properties after approx. 3 days
  - drying at elevated temperatures is not recommended
  - the exact drying times depend on film thickness, ventilation, temperature, relative humidity, etc.
- o **Material consumption:**  
Theoretical consumption: 8.5 m<sup>2</sup> per litre at 60 µm dry film thickness, this dry film thickness can be achieved in a one-coat application. Practical consumption is between 150 and 200 ml per square metre.
- o **Health & Safety:**  
Extensive information is available from the health and safety data sheets.

## Detailed application instructions

### General

- o Apply to general health and safety instructions, e.g. keep away from heat, sparks and open fire; do not eat, drink or smoke during application, use only in well ventilated areas (see safety information sheet)
- o Always: ***Stir well before use! Check colour!***
- o Do not mix with other substances than indicated by manufacturer.
- o Do not dilute for brush and roller application.

### Iron and steel

- o Remove rust and rust scale, loose mill scale, oil, grease and all other impurities by appropriate means. Apply coating on a clean and dry substrate.
- o Depending on exposure apply one or more coats by brush or roller (do not dilute). For spray application dilute according to the list printed on page 4.
- o The service life increases at thicker total dry film thickness. In practice one up to 3 coats is recommended, depending on exposure.
- o On vertical objects a wet film thickness up to 150 µm can be easily applied without sagging (depending on application method).

### Rusted steel

- o Remove loose rust and rust scale. A sound substrate is required for optimum and lasting result (minimum degree of surface preparation: St 2; ISO 8501-1; 1988).
- o **Brantho-Korrux "3 in 1"** penetrates into the remaining rust. To prevent further corrosion of such a rough substrate, apply sufficient material (at least one extra coat).

### Aluminium (light metals)

- o Slightly abrade, adhesion promoter or primer is not required, degrease and clean the substrate properly.
- o **Do not** abrade with steel fibre, preferably use a plastic fibre embedded abrasive (e.g. Scotch Brite® or similar).
- o Apply normal thickness (not too thin!). Adhesion test: please note that optimal adhesion is achieved after 3 days.

### Weathered galvanised steel

- o Properly clean and degrease total substrate (e.g. use multiclean), carefully remove all loose matter and zinc salts (white rust).
- o Apply sufficient film thickness on already rusting and consequently rough substrates.

### New galvanised steel

- o Slightly abrade, adhesion promoter or primer is not required, degrease and clean the substrate using a water-based cleaner/degreaser (e.g. multiclean).
- o Carefully remove zinc salts (white rust). **Do not abrade with steel fibre**, preferably use a plastic fibre embedded abrasive (e.g. Scotch Brite® or similar).
- o Only apply on a well-prepared, clean and dry substrate, free of grease, oil and all other contaminants. Apply sufficient film thickness (min. 60µm dry) in order to obtain proper adhesion and long-term protection.

### Plastics

- o Properly clean and degrease. Check compatibility by applying "3 in 1" to a test piece. **Brantho-Korrux "3 in 1"** is excellently suitable for most plastics like PVC window frames, GRP (glass-fibre-reinforced polyester), previous coatings, etc. Not suitable substrates are "soft" plastics alike Polyethylene (=Polyolefins); Plexiglas® (acrylics) and Polystyrene may dissolve, but can be coated.

### Other substrates

- o There are many more possibilities. Due to its elasticity "**3 in 1**" can be used on wood if a permeable coating is not required. Even on glass "**3 in 1**" shows proper adhesion. On concrete floors add "**3 in 1**" **activator** to obtain a abrasion resistant floor which can be taken into service very shortly after application.

### Further Information

- o **Brantho-Korrux "3 in 1"** may be disposed of without extra cost for chemical waste (according to German legislation).
- o Adding "**3 in 1** **Glanz-Additiv**" (750 ml to a 5 litre can) will result in an approx. 20% higher gloss level.

### Minimum tenability

The tenability indication on the cans implies the warranted tenability in unopened, original cans, in a cool, well-ventilated dry storage area. The indicated tenability is **no expiry date**, under normal conditions the coating may be used up to 5 years without loss of quality. The indicated minimum tenability should help to identify the older cans so that they may be used first. As long as the coating material can be stirred homogeneously, it can be applied without problems.

### Brush application

- o Apply material with standard round, oval or flat brushes (industrial quality), d.f.t. 40-80 µm can be achieved. After 1-2 hours the next layer can be applied (avoid excessive brushing to prevent bleeding when different colours are used!). Colours containing micaceous iron oxide can easily be applied up to 100 µm dry.

### Spray

- o The table below contains guidelines for spray application; please follow directions of equipment manufacturers. The use of Branth's Kombi-Thinner is strictly recommended. When spraying a dry film thickness from 50 µm (small objects, air atomised) up to 125 µm (large objects, airless) can easily be achieved.

### Roller application

- o A short nap synthetic roller is recommended (up to 12 mm nap), nylon, suitable for 2-component coatings; a d.f.t. of 40-60 µm can be achieved. Do not use foam rollers.

### Special effects

**Brantho-Korrux** can be used for special effects. Apply undiluted material shortly after drying of previous coat, the effect depends on opening, pressure and distance. For better "hardness" add Branth's special activator.

	"3 in 1" colours		"3 in 1" m.i.o.'s
	small objects	large objects	large objects
<b>Air pressure 4-5 bar</b> Gravity cup, Pressure cup or Suction cup - opening 1.4-1.7 mm  - opening 2.0-2.5 mm  - opening 2.5-3.5 mm	20-30 sec./ 4 mm dilute 10% Kombi-Th.  30-40 sec./ 4 mm dilute 5% Kombi-Th.	---  30-40 sec./ 4 mm dilute 5% Kombi-Th.  100-150 sec./ 4 mm dilute 0-3% Kombi-Th.	---  ca. 60 sec./ 4 mm dilute 10% Kombi-Th.  ca. 120 sec./ 4 mm dilute 3-5% Kombi-Th.
<b>Airless</b> <b>Min. 150 bar</b> - tip 17/40 tot 19/40  - tip 21/40 tot 23/40  - tip 25/40 tot 27/40	---  ---  ---	ca. 80 sec./ 4 mm dilute 5%  dilute max. 3%  no dilution	ca. 100 sec./ 4 mm dilute 5-7%  dilute max. 3%  no dilution
<b>Air-mix 90/3 bar</b> opening 0.2-0.5 ∠ 40°	30-40 sec./ 4 mm dilute max. 10%	40-50 sec./ 4 mm dilute 5%	50-60 sec./ 4 mm dilute up to 5%
<b>HVLP 5/1 bar</b> opening 1.6-3.5	20-30 sec./ 4 mm dilute 12%	30-40 sec./ 4 mm dilute 6%	30-40 sec./ 4 mm dilute max. 12%
<b>Airbrush</b> <b>0.8-2 bar</b>	20 sec./ 4 mm dilute 15%	---	---

### Electrostatic spray

- o **Brantho-Korrux** can be applied with electrostatic spray equipment (both airless and air atomised), the material shows an electrical conductivity of > 100 k-Ohm. Dilute according equipment manufacturer's specifications.
- o The electrical resistance at delivery of "3 in 1" is 1500-2500 kΩ. When diluting to airless viscosity (ca. 80-90 sec./DIN 4 mm)

this value decreases to 1000-1800 kΩ., for air atomised spray (ca. 30-35 sec./ DIN 4 mm) this value decreases to 1000-1500 kΩ.

- o On request, the material can be delivered to the customer's specification (min. 25 l.). Prices to be advised.
- o Aluminium and micaceous iron oxide cannot be applied with electrostatic equipment.

### **Support: Selection of the appropriate airless**

**filter3:** current filters are:

**red** 180 mesh/cm<sup>2</sup> size: 0.084 mm  
for very low viscosity lacquers  
e.g. 0.007-0.013" tip-size

**yellow** 100 mesh/cm<sup>2</sup> size: 0.14 mm  
for normal to high-build coatings  
e.g. 0.011-0.019" tip-size

**white** 50 mesh/cm<sup>2</sup> size: 0.32 mm  
for zinc-rich and mio coatings  
e.g. 0.015-0.025" tip-size

**green** 30 mesh/cm<sup>2</sup> size: 0.5 mm  
for heavy materials alike bitumen  
e.g. tip-size 0.027" and up

For Brantho-Korrux **yellow** and **white** are used.

### **Dipping**

- o Due to its basic properties, drying time, recoatability, environmental acceptability, **Brantho-Korrux "3 in 1"** is suitable for dipping. Very little deposit formation in the dipping vessel.
- o The required viscosity depends on object and passing method, normally at 20-35 sec./ DIN 4 mm. Adjust viscosity with Branth's special "dipping" thinner.
- o We recommend stirring the contents of the dipping vessel continuously at very low speed. Complete circulation of the vessel once or twice a day is considered sufficient (practical experience).
- o The yearly consumption should be minimal twice the content of the vessel.

### **Temperatures**

- o During application a temperature of object- and surroundings around 20°C is optimal. Temperature should be between + 2°C and + 30°C.  
At higher temperatures the drying speed increases, not the curing (dry hard) time. Drying speed can be retarded (in the summer) by using Branth's Spezial-Thinner (the curing will not be retarded).  
At very low temperatures apply "warm" material or add some thinner.  
**"3 in 1"** can also be applied at very low temperatures, even down to -10°C, the drying time increases and also the flow properties will suffer; do not apply on ice or frost.

- o The cured coating shows excellent heat resistance. Practical experience shows that exposure to dry heat up to max. 300°C has no influence on the quality of the product. Depending on colour, discoloration should be expected from ca. 120°C and up. For temperatures over 200°C the colour oxide-red RAL 3009 is recommended, up to 250°C silver-aluminium RAL 9006 and black RAL 9005 are recommended.  
Temperature-shocks (e.g. a sudden temperature change from + 250°C down to + 5°C (cold water), from +70°C down to -20°C) and extremely low temperatures (down to -50°C) showed no negative influence on the coating.
- o The ideal storage temperature for the coatings is between 10° and 20°C. Freezing normally does not harm. Temperatures above will shorten the storage stability.

### **Drying times**

- o **"3 in 1"** is an air-drying coating, which is normally applied without activator.
- o The precise drying times depend on film thickness, ventilation, relative humidity and air-temperature.
- o A thicker coat can easily be applied in one coat, however, this will cause a considerable increase of the drying time. **"3 in 1"** reacts in a thermoplastic way for a few days after application and cannot be abraded.
- o 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.
- o The drying mechanism of **"3 in 1"** causes the adhesion to increase after approx. 3 days (completely dry). During this drying period, objects cannot be stacked, as blocking will occur. If applied as a primer **"3 in 1"** may be mixed with **"nitrofest"**.
- o Long-term exposure to liquids (e.g. rain on horizontal surfaces) may cause "moisture stains" during the curing (up to 5 days after application).
- o Ventilation with fresh air accelerates the drying/curing speed; forced drying with warm air over 30°C slows down the curing speed.
- o **"3 in 1" activator** shortens the drying times (not dry to touch) and increases the mar resistance of the surface considerably (especially for dark colours). The addition should be between 5-10% for topcoats only (not recommended for primers!), the mixture should be used within one working day. Please do not use **"3 in 1" activator** in combination with metallic or m.i.o. coatings (610, RAL 9006 and 9007).

<b>Recoat intervals at 20°C / 65% relative humidity</b>			
<b>primer</b>	<b>topcoat</b>	<b>minimum</b>	<b>recommended</b>
"3 in 1"	"3 in 1"	15 min.	> 2 hours
"3 in 1"	Robust-Lack	15 min.	> 2 hours
"3 in 1"	S-Glasur	30 min.	> 2 hours
"3 in 1"	Alkyd paint	30 min.	> 1 hour
"3 in 1"	Water-based	2 hours	> 5 hours
"3 in 1"	nitro-cellulose-lacquer	5 hours	> 8 hours
"3 in 1"	2-c-acrylic	12 hours	> 24 hours
"3 in 1"	2-c-epoxy	24 hours	> 24 hours
"3 in 1"	2-c-polyurethane	16 hours	> 24 hours
"3 in 1"	PVC (vinyl)	15 min.	> 2 hours

### Recoating

- o "3 in 1" dries to a dirt repellent, eggshell finish (semi-gloss), normally a two-coat system is sufficient, an extra topcoat is not necessary.
- o "3 in 1" can be recoated unlimitedly with itself (abrading/sanding not necessary).
- o If required, "3 in 1" can be recoated with all sorts of one-component coatings and with several (tested) two-component coatings. However, some type of coatings may require a longer drying time of "3 in 1" (fast drying two-component high-build epoxy coatings and adhesion primers with a solids of < 10% are not suitable as topcoat for "3 in 1").
- o The table above contains guidelines (minimum interval and recommended interval time), recoating is possible without abrading/sanding at any later moment.
- o Recoating according to the German Railway standard: When recoating "3 in 1" with coatings according to page 75 and 77 of TL 918 300 T2 (two-component epoxy and polyurethane coatings) a 24 hours interval is recommended due to the aggressive nature of the solvents, in order to prevent resolving or bleeding. Under normal circumstances an interval of two hours is sufficient, at varying weather conditions or at low temperatures recoat when the material is dry to handle, in any case the material can be recoated the next day without any problem

### Gloss

- o Degree of gloss of "3 in 1" is "eggshell/dirt repellent, and can differ per colour in order to obtain an optimal pigmentation (hiding power).
- o Degree of gloss according NCS: 20 - 50% (depending on colour).
- o By mixing "3 in 1" with **Branth's Robust-Lack** (high gloss) a higher gloss can be obtained, by mixing with **Brantho-Korrux "nitrofest"** (flat) a lower gloss can be obtained.

### Colours

- o **Brantho-Korrux "3 in 1"** is available in many colours (see colour card). All colours are intermixable in any mixing ratio.
- o All colours show optimal protection against corrosion and have optimal hiding power.
- o Special colours are available from 25 l. orders according to a colour standard (RAL, NCS) or colour sample.

### Important: Aluminium /m.i.o. coatings

- o The technical information herein is based on normal colours. For aluminium and m.i.o. coatings not all data does apply (aluminium-effect, m.i.o. effect, e.g. RAL 9006, 9007, DB 601, 703, etc.). These colours should not be used for food contact applications or for toys. These coatings can be applied in a thicker film (+50%) and will dry somewhat slower accordingly. They also show better protection against corrosion. "3 in 1" activator concentrate is not suitable for these products, Quick-Härter could be used instead.

## Durability, resistance and test-results

**TÜV-tested:** Brantho-Korrux "3 in 1" successfully passed all corrosion resistance tests for lead- and chromate free coatings by TÜV, the quality control system of BRANTH CHEMIE assured by TÜV.

**DB-tested:** (Deutsch Bahn = German Railways) Brantho-Korrux "3 in 1" is extensively tested as substitute for red-lead primers and approved for protection of steel-constructions. (Material No.: 672.05 according TL 918 300 T2).

**PVC-substitute:** Brantho-Korrux "3 in 1" complies with and even surpasses the requirements of PVC-coatings according to DB-TL 918300 BL 77, extensively tested by IKS (short- and long term).

**Epoxy-substitute:** Brantho-Korrux "3 in 1" can partly be used as substitute for 2-component epoxy coatings (e.g. for cooling equipment). Up to a resistance against sulphuric acid 40% and potassium hydroxide 25% (spot-test), completely cured Brantho-Korrux "3 in 1" complies with all requirements according DB-TL 918300 Page 87.

**Classification:** According to the German hazardous substances decree Brantho-Korrux "3 in 1" does not contain any substance requiring classification with a warning symbol. Therefore Brantho-Korrux "3 in 1" does not require restrictions for applicators with regard to storage, transport, personal protection, environment waste removal, etc.

**Food contact:** Brantho-Korrux "3 in 1" can be used for application of the inside of storage tanks and processing equipment for food products, according to the directions of the German Ministry of Health (XL), (tested by the approved laboratory of Dr. Kittel.)

**Toys:** Brantho-Korrux "3 in 1" may be used for playground equipment or toys, which normally may be chewed or sucked, or direct contact with the skin occurs (tested according to DIN 53160, the test solutions showed pH values between 2.4 and 8.8).

**Anti-slip properties:** For stairways, floors, etc. we recommend the application of RAL 9007 or DB 0601 (or mixtures with these colours), the roughness of the dried coating provides a non-skid effect.

**Electrostatic conductivity:** The electric conductivity of Brantho-Korrux "3 in 1" is sufficient to make the product suitable for the exterior of petrol storage tanks. Values: RAL 7032 =  $0.04 \times 10^6$  k $\Omega$ ; RAL 9006/9007 =  $0.02 \times 10^6$  k $\Omega$ .

**Resistance:** Resistance against many substances was tested successfully according to DIN 53168-B, e.g. against transformer-oil (up to 60°C), diesel/fuel oil, gear oil (up to 80°C), hydraulic oil (up to 80°C), lubricating grease, anti-freeze (f.e. VW-Audi glycol 100% and 50%, Glythermin NF 50%),

cooling fluids (pH 8-11), salt water (5% = sea water), molasses, 1.5% acetic acid, 10% ethyl alcohol, bird droppings (sea-gull and pigeon), etc.

**DIN-Tests:** a brochure with test-results is available upon request, containing e.g.: Cross cut adhesion test according to DIN 53151 respectively DIN-EN-ISO 2409. Salt spray tests according to DIN 53167, 50021 SS, 53210, 53209. Condensation water tests according to DIN 50018 KFW 2,0 S, 50018 SFW 0,2 S, DB-TL. Impact resistance according to DIN 53154. Abrasion resistance according to DIN 53233. Elongation according to DIN-EN-ISO 1519. Elasticity according to DIN-EN-ISO 1520 and many other tests.

**Colour:** Slight deviation with regard to colour standards (RAL) or samples may occur in individual cases, this is dictated by the choice of the raw materials. Quality control is carried out visually and with a computer system according to CIE colour model. Tolerances/margins are determined at Branth Chemie internally according to DIN 6175.

**Quality control:** Apart from our quality control according to the Q.C. manual, the purchaser of material (from 50 l. and up) can be supplied, upon request, with a quality certificate according to DIN 50049-2.3.

**Eco-Audit:** Brantho-Korrux "3 in 1" is manufactured according to the EG-ecological-audit directive, respectively according to **DIN-ISO 14001**.

**Waterway signalisation** (WSV-approval)

Brantho-Korrux "3 in 1" is approved for "floating" waterway markings like buoys, etc

**Product code for coatings according GISBAU**

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

Coating, solvent based, aromatic free: M-LL01

**Classification according VdL-RL 01**

**"Coatings for the building industry"**

Metal protection, corrosion resistant primer, semi-gloss topcoat, **free from aromatics**.

**Classification according DIN 4102-1**

Brantho-Korrux "3 in 1" meets the requirements of "Baustoffklasse B2"

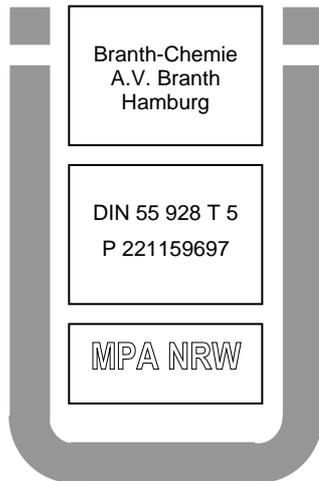
**VOB / DIN 18363**

Brantho-Korrux "3 in 1" is approved for all sorts of steel substrates and suitable for application on most metal substrates. For applications acc. to DIN 55928 Part 5 Table 5 (Duplex Systems) excellent practical results are available. The requirements acc. to DIN 55928 Part 5 Table 6 (Water engineering with steel) Brantho-Korrux "3 in 1" are only met in some cases, e.g. as substitute for red lead. A freshly applied coating of Brantho-Korrux "3 in 1" can hardly be sanded or abraded due to the high flexibility.

Brantho-Korrux "3 in 1" shows excellent adhesion on previous coatings, and all tested topcoats adhere excellently when applied on Brantho-Korrux "3 in 1".

## Approvals for steel-constructions and -equipment

For the erection, modification and maintenance of building constructions **Brantho-Korrux "3 in 1"** is approved according to following Ü-mark. The approval concerns practically all Corrosion Classes and practically all Coating Systems according DIN 55928 T5 Table 4 (**Brantho-Korrux "3 in 1"** should not be used for extreme chemical exposures (alike immersion) -acc. Remark 2-. When using for O.E.M. or shop application please note **Brantho-Korrux "3 in 1"** is more elastic and flexible as e.g. 2-component coating systems).



## Primer

**Brantho-Korrux "3 in 1"** can be applied on all steel substrates as a primer, prepared as follows: Sa 2, Sa 2½, Sa 3, St 2, St 3 – thus on blasted or manually prepared, slightly rusty substrates.

**Brantho-Korrux "3 in 1"** substitutes all primers according to DIN 55928 T5 Table 4 and is an equivalent for red lead primers according to Part 3.3.2.1. of DIN 55928 T5.

## Topcoats (Intermediate and finish)

**Brantho-Korrux "3 in 1"** is approved as intermediate and topcoat and can be used as substitute for the following systems acc. to DIN 55928 T5 Table 4: Alkyd resin, Alkyd combinations, Epoxy ester, Vinyl-chloride-copolymer (PVC), Chlorinated Rubber, PVC-combinations, Chlorinated Rubber combinations, Acrylic-copolymer-combinations, Acrylic-copolymers, Epoxy and Polyurethane.

## Corrosive exposures (Applicability)

**Brantho-Korrux "3 in 1"** is suitable as a primer, intermediate and topcoat for following exposures: Interior, rural, urban, industrial and marine atmospheres, as well as for the following exposures in the open air: chemical (CH), sprinkler salt, - sand, - grit and exhaust fumes. It may be used in the open air as well as in confined areas on accessible and inaccessible surfaces. For chemical exposures in confined areas **Brantho-Korrux "3 in 1"** can be used as primer and can be covered with special, chemical resistant, 2-component coatings.

## Brantho-Korrux "3 in 1" fulfills DIN EN ISO 12944)

**Brantho-Korrux "3 in 1"** is qualified according to DIN-ISO 12944-6 for all 6 corrosion categories in atmospheric conditions on steel (Sa 2½) and hand prepared steel (St 2). According to DIN-ISO 12944-6 the lifetime expectancy in corrosion categories C-5-J (extreme Industrial) and C-5-M (extreme Marine) is over 15 years for a 3-coat system. In the corrosion categories C-1 (minor), C-2 (light) C-3 (medium) and C-4 (strong) the highest possible lifetime expectancy is achieved for a 1-coat or a 2-coat system.

According to DIN 12944-5 **Brantho-Korrux "3 in 1"** is approved for initial protection of steel substrates (prepared to Sa 2½ or St 2) (Part 5.1.2.1.) and also for maintenance of previously coated substrates acc. Part 5.1.2.2.. According to the requirements of DIN 129044-1 Part 5 (also 12944-5 Part 5.3) **Brantho-Korrux "3 in 1"** does neither contain toxic nor carcinogen preparations and offers a low VOC-content.

The expected lifetime in the corrosion categories of DIN EN ISO 12944-6 are achieved by **Brantho-Korrux "3 in 1"** as follows:

corrosion category	lifetime					
	C1	C2	C3	C4	C5J	C5M
S	1x	1x	1x	1x	(2x)	(2x)
M	1x	1x	1x	2x	(2x)	(2x)
L	1x	2x	2x	3x	3x	3x

1x stands for: one coat resp. 80 µm

2x stands for: two coats resp. 160 µm

3x stands for: three coats resp. 240 µm

Test results according DIN EN ISO 12944-6 (between brackets) derived from test results

## Practical examples for "Lifetime expectancy" according DIN EN ISO 12944

### 1-coat system:

- More than 15 years: inside heated buildings, C1
- Up to 15 years: Atmospheres with low level of pollution and dry climate. Unheated buildings where condensation may occur, C2

### 2-coat system:

- **More than 15 years:** Atmospheres with low level of pollution and dry climate. Unheated buildings where condensation may occur, C2
- Up to 15 years: Urban, industrial and coastal atmospheres, moderate sulphur dioxide pollution and moderate salinity. Production rooms with high humidity and air-pollution, C3 and C4.

### 3-coat system:

- **More than 15 years:** In all previously mentioned cases and industrial and coastal areas with high humidity and aggressive atmosphere. Coastal and offshore areas with high salinity C5 I/M.

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 5/99; by Jos van Ochten for BrabCoat in Roosendaal, The Netherlands.