

ANQUAMINE[®] 735

Curing Agent

DESCRIPTION

Anquamine 735 curing agent is a waterborne curing agent for standard liquid epoxy resin. It is specifically designed for cost effective high film build concrete coatings. It is particularly suitable for water-based self levelling systems of 1-3 mm film thickness. Formulations based on Anquamine 735 curing Agent provide highly decorative functional floors without the requirement for plasticisers or solvents.

TYPICAL PROPERTIES

Property	Value	Unit	Method
Appearance	Amber Liquid		
Colour	max 4	Gardner	ASTM D 1544-80
Viscosity @ 25°C	12000-16000	mPa.s	Brookfield RVTD, Spindle 4
Amine Value	210-240	mg KOH/g	Perchloric Acid Titration
Specific Gravity @ 25°C	1.05		
Total Solids Content	53-57	wt %	
Equivalent	200	Wt{H}	
Recommended use Level	100	PHR	With Bisphenol A diglycidyl ether (EEW=190)

ADVANTAGES

- Cost effective concrete protection
- Excellent handling and wet edge recovery
- No requirement for the use of plasticiser
- Highly adaptable and decorative surface finishes
- Low colour and good yellowing resistance

APPLICATIONS

- Self levelling protective flooring (1-3 mm)
- Emission-compliant flooring systems
- Water-based epoxy mortar systems
- Water-based epoxy grouts

SHELF LIFE

At least 12 months from the date of manufacture in the original sealed container at ambient temperature. Store away from excessive heat and humidity in tightly closed containers.

PACKAGING AND HANDLING

Refer to the Safety Data Sheet for Anquamine 735 curing agent.

TYPICAL SELF LEVELLING HANDLING*

Property	Value	Unit	Method
Pot Life @ 23°C	~30	min	
1 day Shore D @ 23°C 60% RH	55		DIN 53505
7 day Shore D @ 23°C 60% RH	70		DIN 53505
1 day Shore D @ 10°C	50		DIN 53505
Compressive Strength after 7 days	40	MPa	ISO 604
Compressive Modulus after 7 days	1,000	MPa	ISO 604

TYPICAL PERFORMANCE PROPERTIES*

Typical cure schedule: 2-7 days

* Start Formulation 3

SUPPLEMENTARY DATA

Anquamine 735 curing agent has been specifically designed for cost effective high film build concrete protection, such as self levelling flooring (SLF) systems, typically applied at 1-3 mm coating thickness. Anquamine 735 curing agent based self levelling system provides smooth surfaces on uneven substrates, high abrasion resistance and good chemical resistance for industrial floor applications.

COST EFFECTIVE CONCRETE PROTECTION: Anquamine 735 curing agent is ideal to formulate self levelling flooring systems with optimum cost performance concrete protection. A self levelling coating at 1-3 mm thickness offers high mechanical protection, smooth surfaces on uneven substrates and easy application. Solvent free systems typically use higher binder content for offering self levelling properties, which contributes to high material cost. In contrast, a self levelling system based on Anquamine 735 curing agent can be formulated to offer optimum protection with a reduced amount of binder. Flow characteristics will be adjusted by incorporation of water, thereby reducing the coating cost.

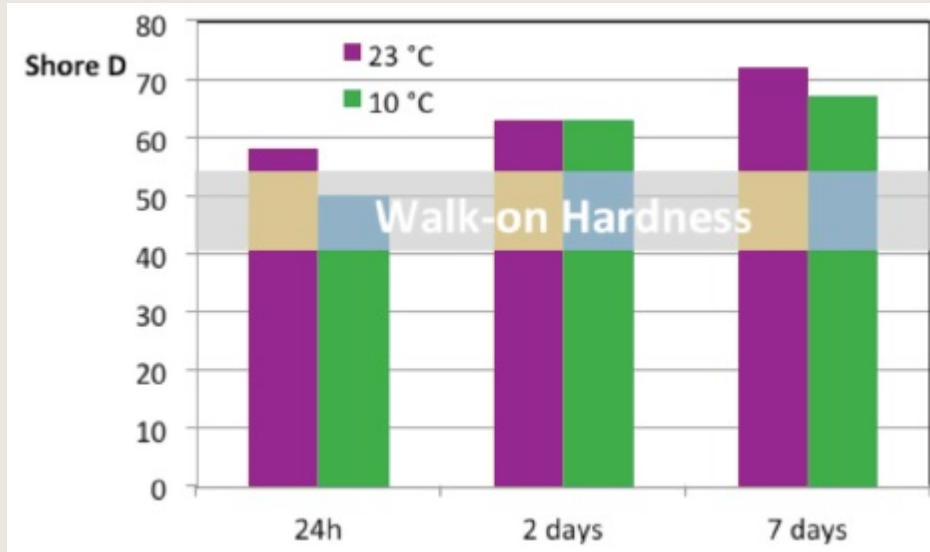
Self levelling floorings based on Start Formulation 3 offer the added advantage of ca. 10% lower density versus incumbent cycloaliphatic systems. This results in an immediate 10% cost saving when compared to incumbent systems applied at equal film thickness. The excellent wet edge property of Start Formulation 3 enables use in thinner layers and further improved cost in use.

HIGHLY DECORATIVE AND FUNCTIONAL FLOORING SYSTEMS: Self levelling coatings based on Anquamine 735 curing agent provide a desirable satin/matt finish therefore reducing the visibility of floor defects and decreasing scratch sensitivity. However, the surface is highly adaptable and can be modified to produce highly decorative gloss surface appearances. Due to the inherent good overcoat ability the self levelling floor can be readily coated with a transparent sealer or topcoat to produce a high gloss or decorative finish with improved chemical resistance and cleanability. The surface can be easily modified by broadcasting sand or pigment effects and then sealed with a transparent topcoat such as an industrial two component polyurethane coating, waterborne polyurethane / acrylic hybrid dispersions, e.g. Hybridur 870 polymer dispersion or two component waterborne epoxy systems for example those based on Anquawhite 100 curing agent, to offer highly decorative or non-slip flooring.

Good compatibility has been found with a number of universal tinting systems commonly used in waterborne acrylic coatings and commercial pigment pastes such as Heucosin[®] pigment dispersions (Heubach), Aquatone[®] dispersions (Sun Chemicals) and Colormatch[®] 50-990 zero VOC universal series (Pasticolors). This compatibility allows for a wide colour pallet, making systems based on Anquamine 735 curing agent very versatile and able to offer a highly decorative solution to concrete protection. The self levelling formulation based on Anquamine 735 curing agent can be used with standard tinting systems to give decorative flooring of various colours.

FAST RETURN TO SERVICE: The self levelling flooring system based on Anquamine 735 curing agent offers fast property development allowing for a rapid return to service. The property development is demonstrated at 23°C and 10°C indicating that even at low temperatures the system will produce a walk-on hardness after 24 h (Figure 1). The system will withstand light traffic after limited cure time allowing for the floor to be back in service or overcoated with a further decorative surface finish much quicker than competitive technologies. This has the advantage of reducing the time a floor will be out of service which has economic and logistical advantages.

FIGURE 1: SHORE D HARDNESS DEVELOPMENT AS A FUNCTION OF TIME OF CURE FOR ANQUAMINE 735 CURING AGENT BASED SELF-LEVELLING FORMULATION CURED WITH ANCAREZ RZ4010 EPOXY RESIN AND EPODIL 748 REACTIVE DILUENT (90/10 W/W) AND APPLIED AT 1.5 MM



PROTECTION TO ABRASION, IMPACT AND CHEMICAL ATTACK: The Anquamine 735 curing agent based self levelling system also offers a high level of protection to the substrate, protecting it from abrasion, impact and chemical attack. Table 1 shows the physical properties of a self levelling system based on Anquamine 735 curing agent compared to the typical properties of a solvent free cycloaliphatic system. The water vapour transmission data indicates that a self levelling system based on Anquamine 735 curing agent provides significantly increase permeability resulting in resistance to osmotic blistering on concrete substrate with a high level of residual water (e.g. fresh concrete) or a high water table.

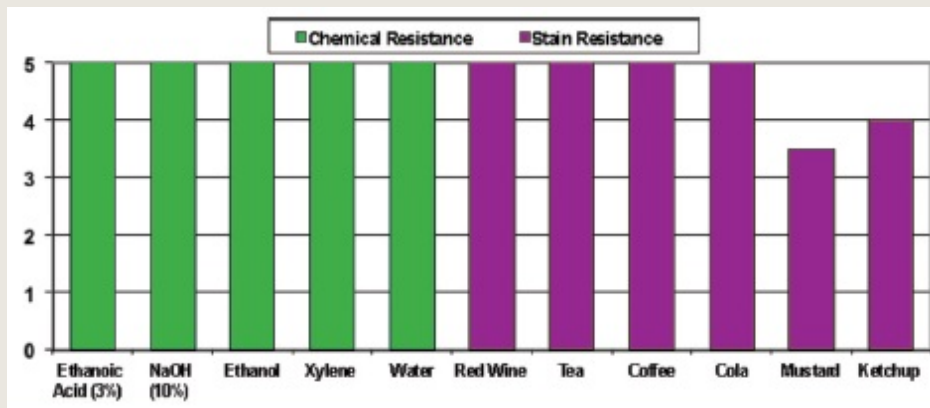
In addition, this system provides high resistance to impact, e.g. from falling heavy objects. Upon impact a 'dent' but no cracking will occur so that concrete will be further protected without extensive repair works.

Self levelling systems formulated with Anquamine 735 curing agent offer excellent resistance to a variety of chemicals. The resistance to some commonly used chemicals and staining foodstuffs is listed below in Figure 2, which demonstrates that for accidental spills and exposure Anquamine 735 curing agent based systems will give very good protection of the concrete and can be cleaned without damage.

TABLE 1: TYPICAL PROPERTIES OF SELF LEVELLING FLOOR SYSTEMS

Physical Properties		Anquamine 735	Cycloaliphatic (50phr)
Surface Appearance	Visual	Satin/Matt	High Gloss
Compressive Strength (28 days)	MPa	40	60
Compressive Modulus (28 days)	MPa	1,000	1,500
Water Vapour Transmission	μ -factor	500-1,000	30,000
Adhesion			
- to Dry Concrete	MPa	4.5	4.0
- to Damp/ Wet Concrete	MPa	4.5	<1.0
Impact Resistance	kg.cm	180-200	<100
Abrasion Resistance (Taber C17)	mg loss	300	260
Plasticiser Free		Yes	No

FIGURE 2: CHEMICAL RESISTANCE OF ANQUAMINE 735 SELF-LEVELLING FORMULATION AFTER 24 HOUR SPOT TEST (SCALE 1-5; 5= BEST, NOT AFFECTED)



EMISSION COMPLIANT FLOORINGS; INDOOR AIR COMFORT: Flooring systems based on Anquamine 735 curing agent are low odour and can be formulated free of volatile organic compounds (VOC) offering VOC compliant systems. The application of coatings in confined spaces limits the use of solvents and other volatiles, due to odour and regulatory constraints. This is equally important for sensitive application in institutional areas such as schools, offices or hospitals which can stay occupied during flooring applications.

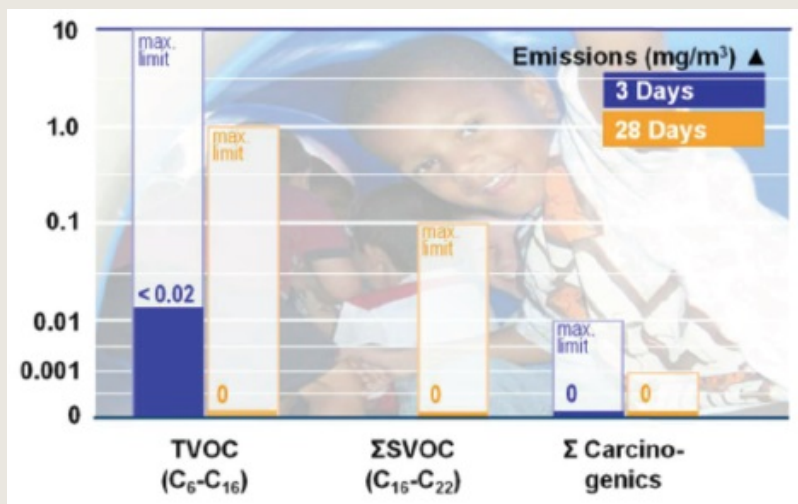
For the evaluation of emission components the concept of “lowest concentration of interest (LCI)” has been developed. LCI is defined as a critical level of emission of a single component reported in $\mu\text{g}/\text{m}^3$, below which a healthy indoor air quality for inhabitants and users during long-term continuous use is established. LCI values have been determined for many chemical substances and based on these values, the German AgBB committee has introduced an interpretation scheme [Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB), “Bewertungsschema für VOC aus Bauprodukten”, Part 3, 1 March 2008]. This scheme validates the accumulated emission products at 3, 7 and 28 days after applying the flooring product. In accordance with EN-ISO 16,000 the following definitions are used:

- VOC:- Volatile Organic Component ranging between $\text{C}_6\text{-C}_{16}$
- TVOC:- Total VOC, accumulated VOC of products $\geq 5 \mu\text{g}/\text{m}^3$ ranging between $\text{C}_6\text{-C}_{16}$
- SVOC:- Slow-Volatile Organic Component $> \text{C}_{16}\text{-C}_{22}$
- ΣSVOC :- Total SVOC, accumulated SVOC of products $\geq 5 \mu\text{g}/\text{m}^3$ with $> \text{C}_{16}\text{-C}_{22}$

Increasingly stringent regulations will further limit emissions from flooring systems during the life of the coating. Systems with specific non-reactive components have shown high emission levels which are above the proposed limits. Self levelling flooring based on Anquamine 735 curing agent are fully reactive and contain no plasticisers or solvents and therefore offer a compliant system. The Anquamine 735 curing agent based self levelling flooring formulation referred to as start formulation 2 (page 8), has been evaluated for emission levels according to the stringent German AgBB standards for the evaluation of emissions from building products on a 2.5 mm floor applied on concrete. The results are summarized in Figure 3. The first measurement of the flooring sample was taken at three days after application and curing at 23°C and 50% relative humidity (RH). Figure 3 shows less than 0.1% emission of VOC ($\text{C}_6\text{-C}_{16}$) components of the maximum norm and no detection of carcinogenic substances. A second emission determination after 28 days cure showed nil VOC, SVOC and carcinogenic substances.

These results clearly demonstrate that a self-levelling system exceeds the emission criteria and may be classified as a flooring system with extremely low emissions. The fact that the coatings are fully reactive, with no plasticisers or solvents, there are also fewer concerns of flame spread and smoke generation in the case of fire, which has positive influence on health and safety and may ultimately lead to improved building insurance premiums.

FIGURE 3: EMISSION TESTING RESULTS OF A SELF-LEVELLING SYSTEM BASED ON ANQUAMINE 735 CURING AGENT FOLLOWING AGBB TESTING SCHEME



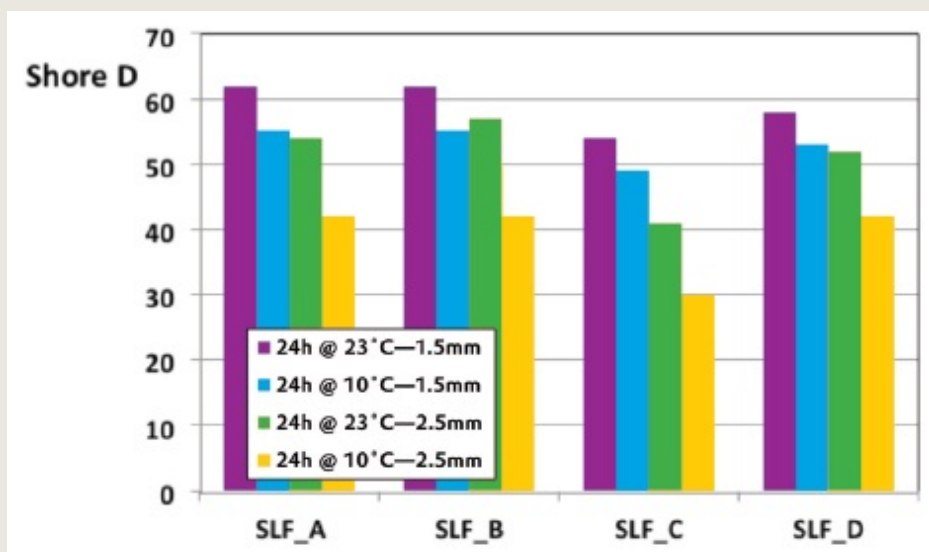
FORMULATION GUIDELINES

HARDNESS BUILD AS A FUNCTION OF EPOXY RESIN TYPE USED: Self levelling floorings based on Anquamine 735 curing agent exhibit good compatibility with liquid epoxy resins based on modified and unmodified Bisphenol-A and/or -F. Reactive diluent modified epoxy resin will offer improved handling and formulating latitude of the self-levelling system. Figure 4 illustrates the early hardness build of the self-levelling system (Start Formulation 3) as a function of liquid epoxy resin type, temperature of cure and applied material per square meter (film thickness).

Self-levelling flooring (SLF) examples SLF_A and SLF_B used a bisphenol-A and bisphenol-F type resin respectively with no reactive diluents. SLF_C used a bisphenol-A/F resin blend diluted with Epodil 748 reactive diluent to an average viscosity 900 mPa.s and EEW 195 (Ancarez RZ-4305 Epoxy Resin). SLF_D was prepared with a bisphenol-A epoxy resin (90%) diluted with 10% Epodil 748 reactive diluent. Figure 4 demonstrates that Ancarez RZ-4305 epoxy resin in SLF_C is a particular suitable resin for use in the 3-pack self-levelling system based on Anquamine 735 curing agent. Good hardness build and handling properties are obtained. Lower levels of reactive diluents, such as shown in SLF_D, facilitated improved early hardness build at the low temperature condition.

In addition, early hardness build is impacted by the applied material per square meter. Typically, higher consumption rates per m² resulted in lower early hardness build though impact to final hardness is marginal. Start Formulation 3 allows to be used at lower consumption rates down to 1.5 mm film thickness thus enabling improved early hardness build.

FIGURE 4: SHORE D HARDNESS BUILD OF ANQUAMINE 735 CURING AGENT BASED SELF LEVELLING FLOOR SYSTEMS.



DEFOAMER AND WETTING AGENT: Additive screening in waterborne self-levelling floorings demonstrated the use of a defoamer is generally recommended.

The preferred defoamer agent for Start Formulation 3 (3-pack) is Airex 900 at 0.1-0.3 wt% loading (as supplied), calculated on Part A. Higher dosage may lead to sweating-out of the defoamer agent, which is further accelerated at higher applied floor thicknesses. Alternative defoamers may be used but may result in rougher surface finish. Alternative recommendations include Surfynol 220 defoamer, Airex 980, Byk 011 or Byk 023.

Start Formulation 2 (2-pack) uses a higher ratio of pigments to binder in comparison to Start Formulation 3 (3-pack).

Silicon-free defoamers Surfynol DF-700 in combination with Surfynol DF-220 are recommended for optimum air release in combination with surface properties.

FILLER PACKAGE AND STORAGE STABILITY: The filler package of Start Formulation 3 balances good flow and levelling with smooth finish and good storage stability. Alternative fillers may be used but typically resulted in compromised surface finish. The flow and levelling of Start Formulation 3 offers excellent comparison to solvent free cycloaliphatic based types.

Baryt F (Sachtleben Chemie) in Part A may be replaced with a combination of Blanc Fix Micro (Sachtleben Chemie) and Silverbond M500 (Sibelco) at the current ratio in Start Formulation 3 (ie 2.2:1 w/w ratio respectively). Doing so, comparable hardness development and appearance are obtainable. Preliminary work using Baryt F only (eliminating Blanc Fix Micro and Silverbond M500) resulted hard settlement over time. Millisil M34 (Sibelco) may be used as an alternative for quartz sand 0.1-0.3 mm displayed in Part C. Also, non-filtered sand types and/or sand quartz sand types with wider grain size distribution may be used but may compromise surface finish. Optional replacement of Millisil M6 (Sibelco) will also lead to less smooth surface finishes.

Furthermore, Start Formulation 3 has been evaluated to withstand 3 months of storage at elevated temperature (40-50°C) with negligible impact to flow and levelling. Also, storage stability upon transportation was evaluated with negligible impact to levelling and appearance. Start Formulation 3 resisted transportation movements at sub-ambient temperature (5-10°C) in excess of 4,000 km length duration.

TRADEMARK REFERENCE

Anquamine® Curing Agent, Ancarez® Epoxy Resin*	Evonik
- Ancarez RZ-4010 Epoxy Resin - Ancarez RZ-4305 Epoxy Resin	- Bisphenol-A epoxy resin, EEW 182-192; n 11-14 Pa.s - Bis-A/F epoxy resin, Epodil® 748 Reactive Diluent diluted; EEW 190-200; n 800-1,000 mPa.s
Anquawhite™ 100 Curing Agent Epodil® Reactive Diluent Hybridur® Polymer Dispersion Surfynol® Defoamer Zetasperse™ Pigment Dispersing Additive	Evonik
Kronos® 2160	Kronos International
Deuteron® VT819	Deuteron GmbH
Byk® 045; Disperbyk® 190	Byk Chemie
Airex® 900	Evonik
Silverbond® M500; Millisil® M6	Sibelco
Bentone® SD-2	Elementis Specialties, Inc
Bayferrox® 318	Lanxess



ANQUAMINE® 735 CURING AGENT — START FORMULATION 1:- CONCRETE PRIMER

This formulation is intended for use as a primer to be applied directly to concrete and is ideally suited as a primer for an Anquamine 735 Curing Agent Self Leveller or Mortar formulation.

A-Component			Concrete Primer
1. Curing agent	Anquamine 735	Evonik	50.00
2. Diluent	Water	Local	10.00
			60.00
B-Component			
3. Epoxy resin	Ancarez® RZ-4010*	Evonik	45.00
4. Epoxy resin	Epodil® 748	Evonik	5.00
C-Component			
5. Diluent	Water	Local	84.00

MIXING AND APPLICATION INSTRUCTIONS: Add Component B to Component A and mix for ca. 2 minutes using moderate shear mechanical mixing equipment to produce a homogeneous liquid. Add Component C to the mixture and continue to mix at low shear for another 1-2 minutes to complete the mixture preparation. The primer can be applied by brush, roller or squeegee.

TECHNICAL DATA

Mixing Ratio A:B	by weight	1.2 : 1 : 1.7
	by volume	1.3 : 1 : 1.9
Density (g/ml)	Part-A	1.03
	Part-B	1.12
	- Total Mix	1.03
Solid Content (wt%)	Part-A	46
	Part-B	100
	- Total Mix	40
Working Time (minute)		30-45
Mix Viscosity (mPa.s)	- Initial (Time 0)	200
	- 15 minutes after mixing	450
	- 30 minutes after mixing	1.500
Dry Times (h)	- Dry-to-Touch	4.5
	- Hard-Dry	5.5
	- Thumb-Twist Dry	6.0
Persoz Hardness (s)	- Day 1 (23°C)	200
	- Day 7 (23°C)	300

ANQUAMINE® 735 CURING AGENT — START FORMULATION 2: - 2K WATERBORNE SELF-LEVELLING FLOOR

This formulation is ideally suited as a self smoothing levelling compound for concrete floors. For optimum performance it should be applied at 1-3mm but can be applied >1cm in thickness.

A-Component			Self-Levelling Floor – 2K
1. Curing agent	Anquamine 735	Evonik	10.00
2. De-airetrainer	Surfynol® DF-700	Evonik	0.50
3. Defoamer	Surfynol DF-220	Evonik	0.50
4. Pigment TiO ₂	Kronos® 2160	Kronos	3.80
5. Filler	Barytmehl F	Sachtleben Chemie	12.50
6. Filler	Quartz powder M6 (D ₅₀ 33µm)	Sibelco	27.00
7. Filler	Quartz sand 0.1-0.5 mm	Local	34.00
8. Thixotropic Agent	Deuteron® VT 819 (2% acq.)	Deuteron	0.20
9. Diluent	Water	Local	11.50
			100.00

A-Component Manufacture Procedure:

- Charge components 1-3 and stir homogeneous at low shear
- Slowly add components 4-5 and adjust viscosity of the mill base by adding partial amount of water (component 9)
- Increase speed to 10-20 m/s and grind mill base for 10-15 minutes
- Add components 6-8 at low shear rate together with remaining water of component 9. Note: component 8 is a 2 wt% dispersion of thixotropic agent in water

B-Component			
10. Epoxy resin	Ancarez® RZ-4305*	Evonik	9.50
Total			109.50

MIXING AND APPLICATION INSTRUCTIONS: Add Component B to Component A and mix for ca. 2 minutes using moderate shear mechanical mixing equipment to produce a homogeneous liquid. Primed substrate is recommended for optimum flow and levelling.

Following the mixing instructions, the self-levelling floor system is ready to apply onto (primed) concrete substrates using a squeegee or similar tool to spread the material. A subsequent spike rolling to promote de-aeration is optional.

TECHNICAL DATA

Density [g/ml]	- Part A	2.04
	- Part B	1.12
	- Total Mix	1.90
Mixing Ratio A:B	- By weight	10.5 : 1
	- By volume	5.8 : 1
Solid Content (wt%)	- Part A	84
	- Part B	100
	- Total Mix	85
Binder content (%)	14.5	
Filler : Binder Ratio	3.4	
Flow (cm @ 20 g mix; 0 min.)		7.4
Wet edge (minutes)	- 2.5 mm	15 (Moderate)
	- 1.5 mm	< 15 (Fair)
Appearance (Visual)	Matt, Moderate finish	
Shore D (23 °C) at 2.5mm		
- Day 1	50	
- Day 7	70	

ANQUAMINE® 735 CURING AGENT — START FORMULATION 3: - 3K WATERBORNE SELF-LEVELLING FLOOR

This formulation is ideally suited as a self smoothing levelling compound for concrete floors. For optimum performance it should be applied at 1-3 mm but can be applied >1cm in thickness.

A-Component			Self-Levelling Floor – 3K
1. Curing agent	Anquamine 735	Evonik	25.00
2. Defoamer	Airex® 900	Evonik	0.30
3. Titanium Dioxide	Kronos® 2160	Kronos Int.	7.50
4. Barium Sulphate	Barytmehl F (D ₅₀ 6µ)	Sachtleben Chemie	14.60
5. Barium Sulphate	Blanc Fix Micro® (D ₅₀ 0.7µ)	Sachtleben Chemie	12.30
6. Silica Flour	Silverbond® M500 (D ₅₀ 3µm)	Sibelco	5.50
7. Water		Local	34.80
			100.00

A-Component Manufacture Procedure:

- Charge Components 1-2 and stir homogeneous at low shear
- Slowly add Components 3-5 and adjust viscosity of the mill base by adding partial amount of water (Component 7)
- Increase speed to 5-10 m/s and grind mill base for 10-15 minutes
- Add Component 6 and remaining water (Component 7) at low shear rate

B-Component			
8. Epoxy resin	Ancarez® RZ-4305*	Evonik	25.00
C-Component			
9. Quartz Sand	0.1-0.3 mm	Local	63.50
10. Quartz Flour	Millisil® M6 (D ₅₀ 33µm)	Sibelco	31.50
Total			220.00

MIXING INSTRUCTION: Add Component B to Component A and mix for ca. 2 minutes using moderate shear mechanical mixing equipment to produce a homogeneous liquid. Add Component C to the mixture and continue to mix at low shear for another 1-2 minutes to complete the mixture preparation.

APPLICATION INSTRUCTION: Primed substrate is recommended for optimum flow and levelling. Following the mixing instructions, the self-levelling floor system is ready to apply onto (primed) concrete substrates using a squeegee or similar tool to spread the material. A subsequent spike rolling to promote de-aeration is optional.

TECHNICAL DATA

Density [g/ml]	- Part A	1.50
	- Part B	1.12
	- Total Mix A/B/C	1.74
Mixing Ratio A:B:C	- By weight	4:1:4
	- By volume	3:1:1.6
Solid Content (wt%)	- Part A	54
	- Part B	100
	- Total Mix A/B/C	79
Binder content (%)	18	
Filler : Binder Ratio	3.4	
Viscosity (mPa.s) (23°C)	- Part A	300 – 400
	- Part B	1,100 – 1,300
	- Emulsion A+B	1,200 – 1,500
	- Total Mix A/B/C	5,000 – 6,000
Flow (cm @ 20 g mix; 0 min.)		8.5
Wet edge (minutes)	- 2.5 mm	30 (Excellent)
	- 1.5 mm	20-30 (Very Good)
Appearance (Visual)	Matt, Smooth surface	
Shore D (23 °C)	1.5mm	2.5mm
- 16 Hours	50	40
- Day 1	55	50
- Day 7	70	65

ANQUAMINE® 735 CURING AGENT — START FORMULATION 4: - TROWEL APPLIED MORTAR

This formulation is ideally suited as a repair compound / mortar for concrete floors and can be applied with a trowel to give a smooth surface for further coating applications.

A-Component			Mortar
1. Curing agent	Anquamine 735	Evonik	65.00
2. Defoamer	Byk® 045	Byk Chemie	5.20
3. Diluent	Water	Local	14.80
			85.00
B-Component			
4. Epoxy resin	Ancarez® RZ-4010*	Evonik	58.50
5. Epoxy resin	Epodil® 748	Evonik	6.50
			65.00
C-Component			
6. Filler	Quartz Powder M600	Sibelco	50.00
7. Filler	Quartz Powder M31	Sibelco	200.00
8. Filler	Quartz Sand (0.2-0.4)	Local	350.00
9. Filler	Quartz Sand (0.7-1.2)	Local	300.00
10. Filler	Quartz Sand (1.0-1.7)	Local	100.00
			1000.00
Total			1150.00

MIXING INSTRUCTION: Add Component B to Component A and mix for 2-3 minutes using low shear mechanical mixing equipment to produce a homogeneous liquid. Add Component C to the mixture and continue to mix at low shear for another 1-2 minutes to complete the mixture preparation.

APPLICATION INSTRUCTION: Primed substrate is recommended for optimum adhesion, preferably using the wet-in-wet method. Following the mixing instructions, the mortar can be trowel applied to the primed concrete substrate to offer a smooth surface with high mechanical properties and is ideal for patch repair of deep cavities or damage on concrete substrates.

TECHNICAL DATA

Density [g/ml]	- Part A	1.05
	- Part B	1.13
	- Total Mix A/B/C	2.23
Mixing Ratio (A+B) : C	- By weight	1 : 6.7
	- By volume	1 : 3.2
Binder content (%)	9	
Filler : Binder Ratio	9.4 : 1	
Solid Content (wt%)		96
- Total Mix A/B/C		
Working Time (minute)		45
Compressive Strength (MPa)		60

ANQUAMINE® 735 CURING AGENT — START FORMULATION 5: - CEMENT-BASED FILLER, TILE GROUT, ADHESIVE

This formulation is ideally suited as a tile adhesive, grout or thixotropic filler and can be applied using a trowel or similar to a variety of substrates.

A-Component			Cement-based Filler
1. Curing agent	Anquamine 735	Evonik	10.00
2. Defoamer	Byk® 045	Byk Chemie	5.00
3. Diluent	Water	Local	100.00
4. Pigment	Kronos® 2160	Kronos Int.	15.00
5. Filler	Filite	Omya	60.00
6. Filler	Quartz Powder M6	Sibelco	400.00
7. Filler	Quartz Sand 0.06-0.10mm	Local	320.00
			1000.00
B-Component			
8. Epoxy resin	Ancarez® RZ-4010*	Evonik	95.00
9. Epoxy resin	Epodil® 748	Evonik	23.00
10. Defoamer	Byk 057	Byk Chemie	0.30
11. Thixotrope	Bentone® SD-2	Elementis	1.00
12. Pigment	Bayferrox® 318	Lanxess	5.00
13. Cement	Portland Cement	Local	125.70
			250.00
Total			1250.00

MIXING AND APPLICATION INSTRUCTIONS: Add Component B to Component A and mix for 2-3 minutes using low shear mechanical mixing equipment to produce a homogeneous liquid. Once mixed it is ready for application using a trowel or similar and can be applied on vertical substrates the sand component is added and mixed to give a homogeneous mixture and then can be trowel applied to the concrete substrate to offer a smooth surface with high mechanical properties and is ideal for patch repair of deep cavities or damage on concrete substrates.

TECHNICAL DATA

Density [g/ml]	- Part A	1.84
	- Part B	1.72
	- Total Mix	1.81
Mixing Ratio A:B	- By weight	4.0 : 1
	- By volume	3.7 : 1
Binder content (%)		14
	Filler : Binder Ratio	5.2 : 1
	Binder : Cement Ratio	1.4 : 1
	Water : Cement Ratio	1.2 : 1
Solid Content (wt%)	- Total Mix	88
Shore D Hardness (23°C)	- Day 1	50
	- Day 2	65
Working Time (minute)		20-25

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