

## Metal Repair Systems



### Oil Tank

**ultrametal** has been used in this case to seal leaky welding seams on oil tanks. Just clean the bonding area with **DIAMANT cleaner**, mix **ultrametal** and apply directly at the spot. No machining, no specialized tools necessary.

### Typical Applications

- pump, tank and heat exchanger coatings
- axe and shaft repair
- maintenance and repair of all metal parts
- corrosion protection
- refurbishment projects
- chemical cold welding

### Product Description

**ultrametal** restores worn, eroded, corroded or damaged metal surfaces and parts bringing them back to full operational use and visual appearance with additional anti corrosion and outstanding technical properties.

### Properties

- ◆ resistant to chemical and physical attacks
- ◆ machinable like metal: can be filed, scraped, milled, turned, bored, screw cutted, polished (**UM Ceram** is not machinable)
- ◆ metallic characteristics are gained by the use of up to 90% **metal fillers** matched to blend with the base metal even at fine polished surfaces
- ◆ zero shrinkage, perfectly usable for large areas
- ◆ long pot life, short cure time
- ◆ high mechanical strength

### Material Selection Criteria

**ultrametal** is a polymer system and consists of the two components resin (comp. A) and hardener (comp. B), supplied in the correct quantities and ready to mix. Choice is dependent on: type of material (steel, iron, ceramic, etc.) and viscosity (fluid or paste).

**Shelf Life** 12 month

### Pack Sizes

twin pack:  
250g  
500g  
1.000g  
bulk packs on request



cold welding of a pump housing

### Preparation

Roughen adhesion areas and clean chemically (optimum: **DIAMANT cleaner**). The surface has to be clean and dry and within the optimum working temperature range between +5 / +45 °C.

### Application

#### Mixing

Pour the hardener (comp. B) fully into the resin (comp. A) container. Mix manually using a spatula or by machine (125rpm for 2min) with propeller mixer. Mix until the hardener has mixed well into the tougher resin. Ensure that all the material is removed from the walls and sides of the tin and is mixed properly. After mixing the material should be applied immediately.

#### Applying

At first apply a thin adhesion layer. Then add the remainder up to the desired layer thickness.

#### Curing

Surfaces are usable after 4 hours for light loading. Completely cured and usable for full loading after 24 hours.

### Range

**DIAMANT ultrametal** is available in the following versions:

Highly filled with metallic fillers for general repairs in all areas up to 160°C.

<b>ultrametal Steel P</b>	# 0666	paste-like
<b>ultrametal Steel FL</b>	# 0664	fluid
<b>ultrametal Iron P</b>	# 1343	paste-like
<b>ultrametal Iron FL</b>	# 1960	fluid
<b>ultrametal Aluminium P</b>	# 1906	past-like
<b>ultrametal Aluminium FL</b>	# 1341	fluid
<b>ultrametal Bronze P</b>	# 1114	paste-like

Filled with different ceramic fillers to obtain high wear resistance for lining and coating to protect against aggressive matters.

<b>ultrametal Ceram P</b>	# 1231	paste-like/white
<b>ultrametal Ceram FL</b>	# 1233	fluid / white
<b>ultrametal Ceramic-Steel CS FL</b>	# 1342	fluid / dark grey



TransNeft Institute



BIRO KLASIFIKASI INDONESIA



**DIAMANT**<sup>®</sup>  
The Metalplastic Company

## Metal Repair Systems

	Steel		Iron		Aluminium		Bronze	Ceram		Ceramic-Steel
	P #0666	FL #0664	P #1343	FL #1960	P #1906	FL #1341	P #1114	P #1231	FL #1233	FL #1342
Pot Life (+20 °C) [min]	60		60		60		60	60		45
Cure time (+20°C) [h]	24		24		24		24	24		20
Specific Weight [g/cm <sup>3</sup> ]	2,3	2,1	2,3	2,2	2,0	1,9	2,2	2,5	2,05	2,1
E-Modulus DIN 53457 [N/mm <sup>2</sup> ]	6000		6000		5800		5800	6500		5100
Compressive Strength [N/mm <sup>2</sup> ]	160	156	160	156	145	141	155	180	176	170
Tensile Strength [N/mm <sup>2</sup> ]	76	76.6	76	76.6	72	72.5	62	74	74.5	72
Bending Strength [N/mm <sup>2</sup> ]	89	87	89	87	82	82.5	79.5	88	88.5	84
Shear Strength [N/mm <sup>2</sup> ]	22	22.5	22	22.5	18.5	18.7	16.5	23	23.5	21
Impact Strength [N/mm <sup>2</sup> ]	5,2	5,0	5,2	5,0	5,4	5,2	5,4	5,8	5,6	5,8
Hardness [Shore D]	89	87	89	87	87	85	86	92	89	92
Temperature Resistance permanent [°C]	-32 to +160		-32 to +160		-32 to +160		-32 to +160	-32 to +160		-32 to +160
Temperature Resistance temporary [°C]	+350		+350		+350		+350	+350		+280
Mixing Ratio by weight	Comp. (A) 9,1	9,1	7	7,6	5	6,3	6,9	7,6	8,2	8,9
	Comp. (B) 0,9	0,9	3	2,4	5	3,7	3,1	2,4	1,8	1,1
Shrinkage at cure	hardly measurable / compensates using risers									

All material values are average values and vary due to mixing ratio, material quantity and environmental conditions. The mentioned material values are based on normal conditions (STP) of 20°C (68°F) and 1013mbar/hPa.

### Case Studies:



coating of turbine blades



coating of a pump housing



coating of an autoclave



coating of a mixing pond

