

**Konservasyon Birimi**  
**Şifahane'de Kullanılan Sulu Boyalar**

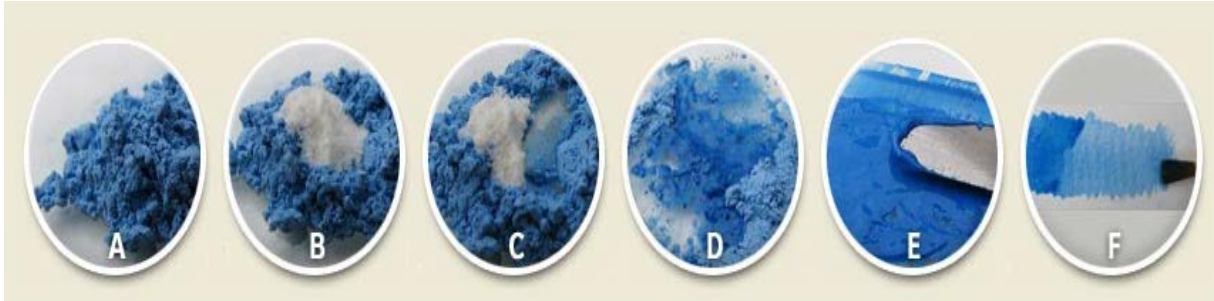
**Sulu Boya**

Sulu boya suda çözünen bir bağlayıcı (genellikle Arap zamkı), katkı maddeleri ve çözücülerle bir arada tutulan pigmentlerdir<sup>1,2</sup>. Pigmentler doğal veya sentetik olabilir<sup>1</sup>.

Rengi pigmentler oluşturur, yani baskı mürekkepleri, kozmetik ve tekstil gibi diğer uygulamalardaki öğütülmüş pigmentler aynıdır. Boyadaki pigment oranı diğer bileşenlere de bağlı olarak %10'un altından %50'nin üstüne kadar değişebilir.

Ticari olarak üretilen sulu boyalarda bağlayıcı doğal Arap zamkı veya sentetik glikoldür. Bunlar sayesinde pigment süspansiyonda tutulur. Bağlayıcı aynı zamanda pigmenti kağıda tutunmasını sağlar. Plastikleştiriciler (örneğin gliserin) ve nemlendiriciler (örneğin bal veya mısır şurubu) gibi katkı maddeleri sulu boyanın viskozitesi ve dayanıklılığı gibi karakteristik özelliklerini değiştirmek için kullanılır. Diğer katkı maddeleri dolgu maddeleri ve seyrelticilerdir<sup>2</sup>.

Toz pigment, Arap zamkı ve su ile sulu boyala yapmak mümkündür (Şekil 1).



Şekil 1- Sulu boya yapımı<sup>2</sup>

A) Palet üzerine saf toz pigment alınır b) Arap zamkı eklenir C) Su eklenir D) Spatula ile karıştırılır. Birkaç damla alkol damlatmak pigmentin dağılmasına yardımcı olur. E) Tüplerdeki gibi sulu boya elde edilir F) Fırça ile sulu boya kağıdına yapılan uygulama sonucu<sup>2</sup>

Sulu boyalar saydam veya örtücü olarak kullanılabilir. Sulu boya tekniğinin en belirgin özelliği renklerin saydam ve canlı kullanılmasıdır. Sulu boya tekniğinde resim yapmak için çok fazla malzemeye ihtiyaç olmamasına karşın malzemelerin tekniğin özelliklerini ortaya çıkaracak kalitede olması önemlidir. Piyasada sulu boyalar tüpte ve kavanozda, sıvı ve küçük tabletler halinde katı olarak bulunmaktadır<sup>3</sup>.

## Schmincke- HORADAM Aquarell

Işık haslığı sadece pigmente değil aynı zamanda tüm formüle bağlı göreceli bir özelliktir. Bu yüzden Schmincke gerek Xenon test ile gerekse fabrika terasında yaptığı uzun süreli testler ile ışık haslığını tespit etmektedir.

Sulu boyanın temel bağlayıcılarından biri Güney Sahara bölgesinden Kordofan Arap zamkıdır. Çoğu doğal malzeme gibi ürün yıldan yıla değişiklik göstermektedir. Schmincke Arap zamkını satın almadan önce testlerini yapar, ardından o yılın en iyi hasatı seçer.

En yüksek kalite için önemli olan bir diğer kriter de sulu boya uygulamasının kontrolüdür. Mükemmel akıcılık için optimum miktarda öküz safrası kullanılmıştır.

HORADAM Aquarell tüp ve tablet sulu boya çeşitlerinde aynı boya formülasyonunu kullanmaktadır. Tekrar kullanabilme ve boya akışı kontrolü boyaların tüp ve tabletlere sıvı haldeyken dökülmesiyle elde edilir. Bu üretim prosesiyle tabletlere her doldurma arasında boyanın oturmasını bekleyerek 4 dolum yapılır. İlk aşamada tablet doldurulur ve belli bir nem derecesine kadar kurutma kabiniinde birkaç hafta bekletilir. 2,3 ve 4. aşamalarda da aynı prosedür takip edilir. Her bir tabletin satışa hazır hale gelmesi 3-5 ayı bulur<sup>4</sup>.

## Şifahane'de Kullanılan Schmincke HORADAM Aquarell Boyalar

Boyalarda kullanılan pigment kodlarına ilişkin açıklayıcı broşür Ek 1'de verilmiştir.

### Titanium Opaque White (101)



Fiyat grubu:1

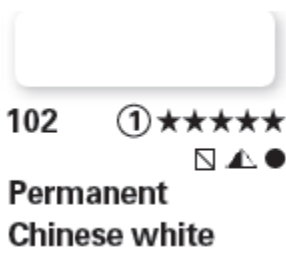
Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık: ■ (opak)

Lekeleme : ▲ (yarı) **reduced assortment** ●

Parlak, ışığa dayanıklı, karışımlarda en yüksek opaklık ve aydınlatma.

Titanyumdioksit, PW 6

### Permanent Chinese White (102)



Fiyat grubu:1

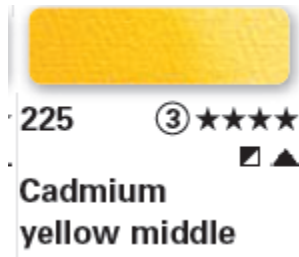
Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık: □ (yarı transparan)

Lekeleme : ▲ (yarı) **reduced assortment** ●

Soğuk, saf, iyi beyaz aydınlatma gücüyle geleneksel, ışığa dayanıklı çinko beyazı, çok az soğuk mavimsi nüans. Transparanlığı sayesinde en iyi karıştırma beyazı.

Çinko oksit, PW 4

### Cadmium Yellow Middle (225)



Fiyat grubu:3

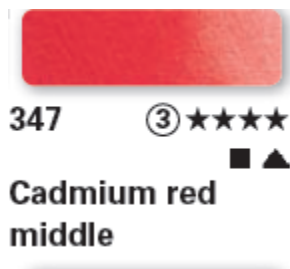
Işık haslığı: ★★★★★ (iyi dayanıklılık) Opaklık:  (yarı opak)

Lekeleme :  (lekeleyici)

Oldukça parlak, opaklık veren karakteriyle güçlü sarı ton.

Kadmiyum-çinko sülfür, PY 35

### Cadmium Red Middle (347)



Fiyat grubu:3

Işık haslığı: ★★★★★ (iyi dayanıklılık) Opaklık:  (opak)

Lekeleme :  (lekeleyici)

Kadmiyum kırmızısı tonlarını genişletir. Opaklık veren karakteriyle orta kırmızı ton.

Kadmiyum sülfoselenid, PR 108

### Cerulean Blue Hue (481)



Fiyat grubu:1

Işık haslığı: ★★★★★ (iyi dayanıklılık) Opaklık:  (yarı transparan)

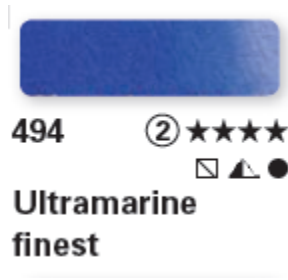
Lekeleme :  (yarı)

reduced assortment

Kobalt içermeyen gök mavisi. Çinko oksit rengin karakterini korur.

Çinko oksit, fitalosiyenin PW 4, PB 15:3

### Ultramarine Finest (494)



Fiyat grubu:2

Işık haslığı: ★★★★★ (İyi dayanıklılık) Opaklık:  (yarı transparan)

Lekeleme :  (yarı) **reduced assortment**

Yarı değerli taş olan Lapis lazuli'den elde edilen klasik ultramarine sentetik bir alternatiftir. Mor tonları için baz renk olarak da kullanılır.

Ultramarin mavisi, PB 29

### Walnut Brown (652)



Fiyat grubu:2

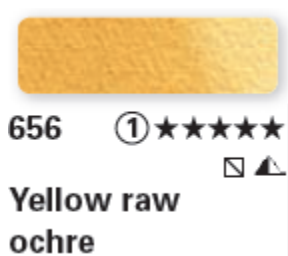
Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık:  (opak)

Lekeleme :  (lekeleyici) **reduced assortment**

Koyu kahverengi. Modern, inorganik 'spinel-pigment'. Işık haslığı çok iyi, iri taneli öğütülmüş, pigmentin opaklık özelliğine bağlı olarak ince tabakalar halinde uygulanır.

Ultraçinko-demir-krom spinel PBr 33

### Yellow Raw Ochre (656)



Fiyat grubu:1

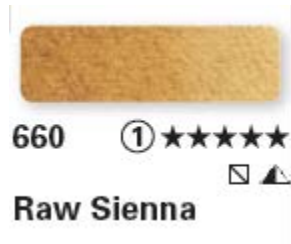
Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık:  (yarı transparan)

Lekeleme :  (yarı)

Doğal toprak pigmentinden parlak sarı okra. Hafif transparan. Işık haslığı çok iyi. Manzara resimleri için özellikle önerilir.

Hidrate demir oksit/ toprak pigmenti PY 42/ PY 43

### Raw Sienna (660)



Fiyat grubu:1

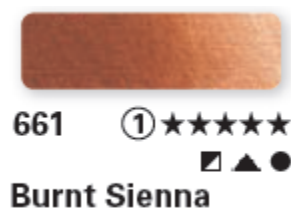
Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık:  (yarı transparan)

Lekeleme :  (yarı)

Saf doğal toprak pigmenti. Geleneksel olarak İtalya'dan. Işığa çok dayanıklı.

Toprak pigmenti PBr 7/ PY 43

### Burnt Sienna (661)



Fiyat grubu:1

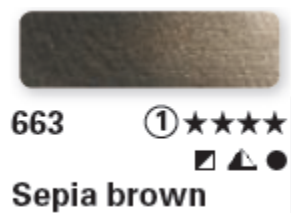
Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık:  (yarı opak)

Lekeleme :  (lekeleyici) **reduced assortment**

Geleneksel toprak tonu. Manzara resimleri için önerilir.

Kırmızı demir oksit, hayvanların karbonlaşmış kemikleri, PR 101, PBk 9

### Sepia Brown (663)



Fiyat grubu:1

Işık haslığı: ★★★★★ (İyi dayanıklılık) Opaklık:  (yarı opak)

Lekeleme :  (yarı ) **reduced assortment**

Fitalosiyenin mavisi, toprak pigmenti, hayvanların karbonlaşmış kemikleri PB15:1, PBr 7, PBk 9.


### Burnt Umber (668)



Fiyat grubu:1

Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık:  (yarı opak)

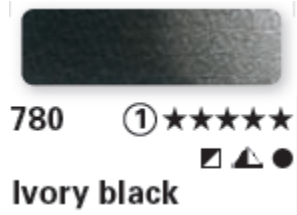
Lekeleme :  (yarı )

reduced assortment 

Sıcak kahverengi. Sadece doğal, yanmış toprak pigmenti içerir. Manzara resimleri için temel renk.

Toprak pigmenti PBr 7

### Ivory Black (780)



Fiyat grubu:1

Işık haslığı: ★★★★★ (Aşırı dayanıklılık) Opaklık:  (yarı opak)

Lekeleme :  (yarı )

reduced assortment 

Çok derin siyah. Önceleri karbonlaşmış fildişinden yapılmaktaydı, günümüzde ise yağı giderilmiş kemiklerin distilasyonu ile üretilmektedir. Az miktarda kalsiyum sülfat, çok az gri-mavimsi ton ekler. Genellikle koyu tonlar ve bulanıklık için kullanılır.

Hayvanların karbonlaşmış kemikleri PBk 9

### Lamp Black (781)



Fiyat grubu:1

Işık haslığı: ★★★★★ (İyi dayanıklılık) Opaklık:  (opak)

Lekeleme :  (yarı )

Grismi siyah. Saf karbondan oluşur. İlk tabakalar için önerilir.

Lamba isi, PBk 6

## Şifahane’de Kullanılan Schmincke ACADEMIE Aquarell Boyalar

Yüksek parlaklık için en yüksek pigment derişimi kullanılmıştır. Boya akışı her zaman kontrol altındadır ve boya palette kuruduğunda tekrar kullanılabilir<sup>4</sup>.

## Schmincke HORADAM ve ACADEMIE Aquarell Boyalar İçin Raf Ömrü

### *Tablet*

Uygun koşullarda muhafaza edildiğinde, tabletteki sulu boyaların ömürleri sınırsızdır. Tablette hiç su kalmamalı ve boya kurumadan kapak kapatılmamalıdır. Normal oda sıcaklığında kuru şekilde muhafaza ayrıca önerilmektedir.

### *Tüp*

Tüpteki sulu boya, guaj ve su bazlı boyaların raf ömrü kısadır. Muhtemel raf ömrü 5 yıl olarak öngörülmektedir. Uzun bir süreden sonra da renkler hala kullanılabilir. Tüplerdeki kurumuş sulu boya suda çözdürülerek kullanılabilir<sup>5</sup>.

*\*Schmincke HORADAM ve ACADEMIE Aquarell boyalar için güvenlik bilgileri Ek-2, Ek-3, Ek-4, Ek-5 ve Ek-6’da verilmiştir.*

### **Kaynakça**

1- <http://www.vam.ac.uk/content/articles/w/watercolour-painting-materials-techniques/>

2- <http://www.webexhibits.org/pigments/intro/watercolor.html>

3- T.C. Millî Eğitim Bakanlığı MEGEP “Meslekî Eğitim ve Öğretim Sisteminin Güçlendirilmesi Projesi “Grafik ve Fotoğraf Sulu Boya Tekniği” (2007) Ankara.

Erişim: [http://hbogm.meb.gov.tr/modulerprogramlar/kursprogramlari/grafik/moduller/sulu\\_boya\\_tekniği.pdf](http://hbogm.meb.gov.tr/modulerprogramlar/kursprogramlari/grafik/moduller/sulu_boya_tekniği.pdf)

4- <http://www.schmincke.de/produkte/aquarellfarben/horadamr-aquarell.html?L=1>

5-

[http://www.schmincke.de/fileadmin/Produktinformationen\\_Englisch\\_2014/Good\\_to\\_know/P\\_I\\_Shelf\\_life\\_of\\_artists\\_colours\\_130626.pdf](http://www.schmincke.de/fileadmin/Produktinformationen_Englisch_2014/Good_to_know/P_I_Shelf_life_of_artists_colours_130626.pdf)

**Schmincke**

# Pigmente

Sorte / Series 18

Reine Künstler-Pigmente

*Pure artists' pigments*



Premium Künstler - Pigmente

18 501 ③ ★★★★★

Kobalttürkis

cobalt turquoise

turchese di cobalto

turquesa de cobalto

100%  
Pigment

**Schmincke**



Viele Künstler reiben auch heute ihr Farbmaterial ganz wie die alten Meister aus den Basisrohstoffen **Pigment und Bindemittel** selber an. Für sie bietet Schmincke neben dem umfangreichen Spektrum feiner und feinsten Künstlerfarben ein hervorragendes Sortiment an erlesenen Premium-Künstler-Pigmenten sowie zahlreiche hochwertige Bindemittel an.

Schmincke **Reine Künstler-Pigmente** tragen das Siegel „100 % Pigment“. Sie enthalten 100 % unverschnittenes Künstler-Pigment und sind, verarbeitet mit unseren hochwertigen Bindemitteln, ein Garant für selbstgemischte Künstlerfarben von höchstmöglicher Brillanz, Farbintensität und Ergiebigkeit. Das Sortiment beinhaltet 48 klassische Farbtöne in einem 100 ml-Glas, zudem 24 spezielle **EXTRA**-Farbtöne wie z.B. echte Kadmium- und Kobaltpigmente in 50 ml-Glas.

Schmincke **Reine Künstler-Pigmente**, Sorte 18

- 48 klassische Farbtöne in 100 ml
- 24 spezielle **EXTRA**-Farbtöne in 50 ml
- maximale Lichtecktheit
- fein gesiebte Pulver



Auf den folgenden Seiten dieser Broschüre finden Sie neben den Farbwischern im Vollton und in der Ausmischung mit Weiß zu jedem Pigment noch diese technischen Informationen:

### Colour Index

Neben einem individuellen Handelsnamen, der meist direkten Bezug auf den Farbton, die Chemie oder die Herkunft des jeweiligen Pigmentes nimmt, gibt es für fast alle Pigmente noch eine standardisierte Colour-Index-Nummer (C.I.-Nummer). Diese Buchstaben-Zahlenkombination ermöglicht mit ein wenig Hintergrundwissen eine einfache Zuordnung eines Farbmittels zu einer Pigment- und Farbtongruppe. Aber aufgepasst: Ein gleicher Colour-Index bei zwei Pigmenten bedeutet nicht zwangsweise einen exakt gleichen Farbton!

#### Gruppe der Colour Index Namen:

- PW = Pigment Weiß
- PY = Pigment Gelb
- PO = Pigment Orange
- PR = Pigment Rot
- PV = Pigment Violett
- PB = Pigment Blau
- PG = Pigment Grün
- PBr = Pigment Braun
- PBk = Pigment Schwarz

### Dispergierbarkeit eines Pigmentes

Beim Selbstanreiben von Künstlerfarben stellt man relativ schnell fest: Nicht alle Pigmente lassen sich gleich gut mit einem bestimmten Bindemitteltyp verarbeiten. Zudem benötigt man zur Herstellung von Malfarben gleicher Konsistenz bei unterschiedlichen Pigment-Typen unterschiedliche Mengen an Bindemittel.

Ein wesentlicher Grund hierfür ist die Tatsache, dass die Pigmente zwei verschiedenartigen chemischen Klassen zugehören: Man unterscheidet in

- M = anorganische Pigmente (ursprünglich „mineralischer Herkunft“)
- O = organische Pigmente (ursprünglich „tierischen oder pflanzlichen Ursprungs“)

In der Regel lässt sich sagen:

- Anorganische Pigmente haben einen geringeren Bindemittelbedarf als organische.
- Anorganische Pigmente lassen sich leichter in wässrige Bindemittel einarbeiten als organische.

**Wichtig zu wissen:** Es ist eine charakteristische Eigenschaft von Pigmenten, dass sie sich – im Gegensatz zu Farbstoffen – nicht im jeweiligen Bindemittel lösen!

### Deckvermögen einer Künstlerfarbe

Das Deckvermögen einer Malfarbe beschreibt ihre Fähigkeit, einen Untergrund abzudecken. Es ist sowohl abhängig von der Zusammensetzung der Malfarbe – also von Art und Menge an Pigment und Bindemittel – als auch von der Stärke der aufgetragenen Farbschicht. Generell unterteilt man in

- lasierend
- halblasierend
- halbdeckend
- deckend

Die Angaben zum Deckvermögen der einzelnen Produkte in dieser Broschüre wurden durch Anreiben in einem Öl-Bindemittel ermittelt. In einem traditionellen Gouache-Bindemittel ist der Gesamteindruck der angeriebenen Pigmente nach dem Trocknen wesentlich deckender.

### Lichtecktheit

Unter der Lichtecktheit versteht man die Beständigkeit einer Malfarbe im Tageslicht. Bewertet wird sie üblicherweise im Vergleich gegen einen 8-stufigen Standard, die sogenannte Wollskala, wobei 1 die geringste und 8 die höchste Lichtecktheit bedeutet. Wir bei Schmincke benutzen zur Darstellung der Lichtecktheit parallel zur Wollskala zudem ein 5-stufiges Sterne-System.

#### Wollskala 5-Sterne-System

Wollskala	5-Sterne-System	Eigenschaft
8	★★★★★	höchste Lichtecktheit
7	★★★★	sehr gute Lichtecktheit
6 + 5	★★★	gute Lichtecktheit
4	★★	befriedigende Lichtecktheit
3	★	ausreichende Lichtecktheit
2 + 1	–	lichtunbeständig

### Kalkecktheit

Als kalkecht bezeichnet man Pigmente, die von gelöschtem Kalk nicht verändert werden. Diese Pigmenteigenschaft ist eine wesentliche Voraussetzung für die Verarbeitbarkeit eines Pigmentes in der klassischen Fresco-Malerei.

- K kalkecht
- Kl nur kalkecht in Innenbereichen

# 100% pure artists' pigments: characteristics

Even nowadays many artists grind their own colour, like the old masters, out of the basic material, **pigment and binder**. Apart from a large assortment of fine and finest artists' colours, Schmincke offers an outstanding range of highly premium pigments and scores of high-class binders.

Schmincke **pure artists' pigments** are labeled "**100% pigment**". They contain 100% pure pigment which has not been extended or blended. In combination with our high-class binders, they guarantee highest possible brilliance, maximum colour intensity and productivity. The assortment contains 48 classical colours in 100 ml jars and in addition 24 specific **EXTRA** colours like genuine cadmium and cobalt pigments in 50 ml jars.

Schmincke **pure artists' pigments**, Series 18:

- 48 classical colours in 100 ml
- 24 specific **EXTRA** colours in 50 ml
- maximum lightfastness
- finely sifted powder



On the following pages of this brochure you will find side by side to the colour samples – in full shade and in mixture with white – also these technical information:

## Colour Index

In addition to the individual commercial name of the particular pigment, which is based on its colour shade, its chemical composition or its origin, you are able to find for nearly every pigment a standardized Colour Index Number (C.I. number). By using this combination of letters and numbers, it is much easier to assign a colourant to a pigment and colour group. But be aware, that a similar Colour Index of two pigments does not guarantee exactly the same hue!

### Group of Colour Index names:

- PW = Pigment White
- PY = Pigment Yellow
- PO = Pigment Orange
- PR = Pigment Red
- PV = Pigment Violet
- PB = Pigment Blue
- PG = Pigment Green
- PBr = Pigment Brown
- PBk = Pigment Black

## Dispersibility of a pigment

While producing your own artist colour you quickly recognize: The reaction of different pigments in varying amounts of binders are totally different! For the production of painting colours of similar consistency, but of different types of pigments, you also need to use a varying amount of binder.

One of the major reasons is the fact that the pigments are sorted into two chemical groups. Generally you differ between:

- M = inorganic pigments  
(in former times "mineral origin")
- O = organic pigments  
(in former times "bestial or vegetable origin")

Basically you can say:

- Inorganic pigments have got a lower demand on binder than organic pigments.
- Inorganic pigments are easier to mix with aqueous binders than organic pigments.

**Important to know:** It is a characteristic property of pigments that they – in contrast to dyes – are not dissolving in the respective binder!

## Opacity of an artists' colour

The opacity of a painting colour describes their ability to cover what is beneath them. This depends on the one hand on the composition of the painting colour – which means type and amount of pigment and binder – on the other hand on the thickness of the applied paint layer. You generally divide into:

- transparent
- semi-transparent
- semi-opaque
- opaque

The values for the opacity of the products in this brochure have been measured by grinding the pigments in an oil binder. Using a traditional gouache binder would make the colours more opaque.

## Lightfastness

Lightfastness indicates the resistance of a colour in daylight. It can be evaluated in comparison to the woolscale and is expressed with numbers, whereby 1 stands for a very low and 8 for the maximum lightfastness. We as Schmincke are using next to this woolscale a 5-star-system to display the lightfastness:







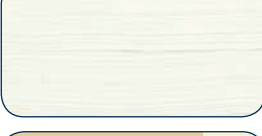





Woolscale	5-star-system	
8	★★★★★	extremely lightfast
7	★★★★	good lightfastness
6 + 5	★★★	lightfast
4	★★	limited lightfastness
3	★	less lightfast
2 + 1	–	not lightfast

## Lime resistance


Pigments, which cannot be changed by hydrated lime, are called lime resistant. This pigment characteristic is an essential condition for the processing of a pigment in the traditional fresco technique.

- K lime resistant
- KI only lime resistant inside

# 48 Pigmente / pigments in 100 ml

Nr. No.	Pigment Pigment	Chem. Zusammensetzung Chemical components	C.I.-Nr. C.I.-No.	Beschreibung Description
	18 106 ① Blanc fixe ★★★★★ M <i>Blanc fixe</i> ☐ K	Bariumsulfat <i>Barium sulfate</i>	PW 21	<b>Permanentweiß/synthetischer Schwerspat;</b> sehr heller Füllstoff mit hohem Gewicht  <b>Permanent white/Artificial barite;</b> very light extender with an enormous weight
	18 107 ① Marmorpulver (Kreide) ★★★★★ M <i>Powdered marble</i> ☐ K	Calciumcarbonat <i>Calcium carbonate</i>	PW 18	<b>Kalkstein/Marmorwehl;</b> heller Füllstoff; ideal in deckenden Maltechniken und zur Bereitung von traditionellen Kreidegründen <b>Limestone/Marble flour;</b> light extender; ideal in opaque painting techniques and for preparing traditional chalk grounds
	18 111 ① Tonerde weiß ★★★★★ M <i>Alumina white</i> ☐ K	Natrium-Aluminiumsilicat <i>Sodium aluminium silicate</i>	PW 19	<b>Porzellanerde/Kaolin;</b> sehr heller Füllstoff; ideal in transparenten Maltechniken  <b>China clay/Caoline;</b> very light extender; ideal in transparent painting techniques
	18 112 ① Talkum ★★★★★ M <i>Talcum</i> ☐ K	Magnesium-Aluminiumsilicat <i>Magnesium aluminium silicate</i>	PW 26	Heller Füllstoff mit geringer Härte; ideal in wässrigen Maltechniken; begünstigt Schleifbarkeit von Grundierungen  <i>Light extender with a low hardness; ideal in aqueous painting techniques; benefits the grindability of grounds</i>
	18 103 ① Titanweiß ★★★★★ M <i>Titanium white</i> ■ K	Titandioxid <i>Titanium dioxide</i>	PW 6	<b>Standardweiß;</b> strahlend weißes Weißpigment mit höchstem Deck- und Aufhellvermögen  <b>Basic white;</b> bright white pigment with the highest opacity and lightening power
	18 105 ① Zinkweiß ★★★★★ M <i>Zinc white</i> ▣ K	Zinkoxid <i>Zinc oxide</i>	PW 4	<b>Chinesischweiß;</b> helles reines Weißpigment mit mittlerem Deck- und Aufhellvermögen; ideal zum „sanften“ Aufhellen von Bunttönen <b>Chinese white;</b> light and clean white pigment with medium opacity and lightening power; ideal to gently lighten up any hue
	18 108 ① Lithopone ★★★★★ M <i>Lithopone</i> ▣ K	Zinksulfid / Bariumsulfat <i>Zinc sulphide / Barium sulfate</i>	PW 5	<b>Deckweiß;</b> warmweißes Weißpigment mit einem Deck- und Aufhellvermögen zwischen <b>Zinkweiß 18 105</b> und <b>Titanweiß 18 103</b> ; ideal zur Herstellung weißer Malgründe <b>Opaque white;</b> warm white pigment with an opacity and lightening power in between <b>Zinc white 18 105</b> and <b>Titanium white 18 103</b> ; ideal to produce white grounds
	18 109 ② Elfenbein ★★★★★ M <i>Ivory</i> ■ K	Titandioxid / Hämatit (Cr) / Eisenoxidhydrat <i>Titanium dioxide / Hematite (Cr) / Iron oxide hydrate</i>	PW 6 / PG 17 / PY 42	<b>Buff Titanium;</b> schmutzig warmer Weißton; Pigmentmischung/Verkollerung  <b>Buff titanium;</b> dirty warm white tone; mixture of pigments
	18 237 ① Zitronengelb ★★★★ O <i>Lemon yellow</i> ▣ K	Monoazo <i>Monoazo</i>	PY 3	Grünstichiges kaltes Gelb; schwermetallfreie Alternative zu <b>Kadmiumgelb zitron 18 226</b>  <i>Green tinted cold yellow; heavy metal free alternative to Cadmium yellow lemon 18 226</i>
	18 239 ③ Brillantgelb ★★★★★ O <i>Brilliant yellow</i> ▣ K	Benzimidazolone <i>Benzimidazolone</i>	PY 154	<b>Grundfarbe Gelb Y/Permanentgelb;</b> rotstichiges warmes Gelb; schwermetallfreie Alternative zu <b>Kadmiumgelb hell 18 227</b> <b>Basic colour yellow Y/Permanent yellow;</b> red tinted warm yellow; heavy metal free alternative to <b>Cadmium yellow light 18 227</b>
	18 240 ② Indischgelb ★★★★★ O <i>Indian yellow</i> ☐ K	Nickelkomplex <i>Nickel complex</i>	PY 153	Orangegelb; lichtechte Alternative zum <b>echten Indischgelb</b>  <i>Orange yellow; lightfast alternative to genuine Indian yellow</i>
	18 252 ③ Orange ★★★★ O <i>Orange</i> ▣ K	Benzimidazolone <i>Benzimidazolone</i>	PO 62	Orange; schwermetallfreie Alternative zu <b>Kadmiumorange 18 231</b>  <i>Orange; heavy metal free alternative to Cadmium orange 18 231</i>


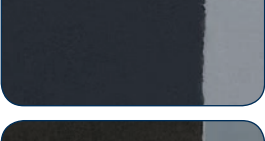

# 48 Pigmente / pigments in 100 ml

Nr. No.	Pigment Pigment	Chem. Zusammensetzung Chemical components	C.I.-Nr. C.I.-No.	Beschreibung Description
	18 241 ② Rotorange	Benzimidazolone	PO 36	Rotorange; schwermetallfreie Alternative zu <b>Kadmiumrot hell 18 360</b>
	★★★★ O Red orange	Benzimidazolone		Red orange; heavy metal free alternative to <b>Cadmium red light 18 360</b>
	☑ K			
	18 371 ③ Zinnoberrot	Diketo-Pyrrolo-Pyrrol	PR 255	<b>Scharlachrot</b> ; Orangerot; schwermetallfreie Alternative zum <b>echten Zinnober</b>
	★★★★ O Vermilion red	Diketo-Pyrrolo-Pyrrole		<b>Scarlet red</b> ; orange red; heavy metal free alternative to <b>genuine Vermilion</b>
	☑ K			
	18 372 ② Naphtholrot	Naphthol AS	PR 112	<b>Permanentrot</b> ; gelbliches Rot; schwermetallfreie Alternative zu <b>Kadmiumrot dunkel 18 361</b>
	★★★ O Naphthol red	Naphthol AS		<b>Permanent red</b> ; yellow tinted red; heavy metal free alternative to <b>Cadmium red deep 18 361</b>
	☑			
	18 373 ③ Karmin	Chinacridon	PV 19	Dunkles, blautichiges Rot; synthetische Alternative zum <b>echten Karminrot</b>
	★★★★ O Carmine	Quinacridone		Deep, blue tinted red; synthetic alternative for <b>genuine Carmine red</b>
	☑			
	18 367 ② Alizarin Krapplack dunkel	Anthrachinon, Al	PR 83	Dunkles, blautichiges Rot; klassisches Rotpigment mit geringer Lichtechtheit
	★★ O Alizarine crimson deep	Antraquinone, Al		Deep, blue tinted red; traditional red pigment with a low lightfastness
	☐			
	18 374 ③ Chinacridonmagenta	Chinacridon	PR 122	<b>Grundfarbe Magenta M</b> ; blautichiges Rot
	★★★★ O Quinacridone magenta	Quinacridone		<b>Basic colour magenta M</b> ; blue tinted red
	☑ K			
	18 485 ③ Blauviolett	Dioxazin	PV 23	<b>Dioxazinviolett/Permanentviolett</b> ; dunkles Violettpigment mit sehr hohem Färbevermögen
	★★★★ O Blue violet	Dioxazine		<b>Dioxazine violet/Permanent violet</b> ; deep violet pigment with a really high tinting strength
	☑ K			
	18 357 ② Ultramarinrot	Natrium-Aluminiumsilicat, schwefelhaltig	PV 15	Rotviolett; klassisches Violettpigment mit geringem Färbevermögen
	★★★★★ M Ultramarine red	Sodium alumino-sulphosilicate		Red tinted violet; traditional violet pigment with a low tinting strength
	☐			
	18 497 ② Ultramarinviolett	Natrium-Aluminiumsilicat, schwefelhaltig	PV 15	Violettstichiges Blau; klassisches Violettpigment mit geringem Färbevermögen
	★★★★★ M Ultramarine violet	Sodium alumino-sulphosilicate		Violet tinted blue; classical violet pigment with a low tinting strength
	☐			
	18 490 ② Ultramarinblau hell	Natrium-Aluminiumsilicat, schwefelhaltig	PB 29	Intensives Blau; synthetische, fabstärkere Alternative zum <b>echten Ultramarin/Lapislazuli</b>
	★★★★★ M Ultramarine blue light	Sodium alumino-sulphosilicate		Intensive blue; synthetic, stronger in colour alternative to <b>genuine Ultramarine/lapis lazuli</b>
	☐			
	18 499 ① Ultramarinblau dunkel	Natrium-Aluminiumsilicat, schwefelhaltig	PB 29	Intensives Blau; synthetische, fabstärkere Variante zum <b>echten Ultramarin/Lapislazuli</b> ; dunkler und violettstichiger als <b>Ultramarinblau hell 18 490</b>
	★★★★★ M Ultramarine blue deep	Sodium alumino-sulphosilicate		Intensive blue; synthetic, stronger in colour alternative to <b>genuine ultramarine, deeper and more violet tinted than Ultramarine blue light 18 490</b>
	☐			
	18 491 ③ Indigo	Indigo, synthetisch	PB 66	Tiefes Schwarzblau; klassisches Blaupigment mit mittlerer Lichtechtheit
	★★★ O Indigo	Indigo, synthetic		Deep black blue; traditional blue pigment with a medium lightfastness
	☐			

# 48 Pigmente / pigments in 100 ml

Nr. No.	Pigment Pigment	Chem. Zusammensetzung Chemical components	C.I.-Nr. C.I.-No.	Beschreibung Description
	18 493 ① Preußisch/Pariser Blau ★★★★★ M <i>Prussian/Paris blue</i> ☐	Eisencyankomplex <i>Iron cyan complex</i>	PB 27	<b>Milori blau</b> ; tiefes Blau; klassisches Blaupigment mit hohem Färbevermögen  <b>Milori blue</b> ; deep blue; traditional blue pigment with a high tinting strength
	18 498 ② Azurblau ★★★★★ O/M <i>Azure blue</i> ☐ K	Phthalocyanin (Cu) <i>Phthalocyanine (Cu)</i>	PB 15 : 3 / PW 6	Helles Blau; Pigmentmischung/Verkollerung  <i>Light blue; mixture of pigments</i>
	18 488 ② Phthaloblau ★★★★★ O <i>Phthalo blue</i> ☑ K	Phthalocyanin (Cu) <i>Phthalocyanine (Cu)</i>	PB 15 : 3	<b>Grundfarbe Cyan C/Helioblau</b> ; neutrales Blaupigment mit hohem Färbevermögen  <b>Basis colour Cyan C/Helio blue</b> ; neutral blue pigment with a high tinting strength
	18 513 ② Phthalogrün dunkel ★★★★★ O <i>Phthalo green deep</i> ☑ K	Phthalocyanin (Cu, Cl) <i>Phthalocyanine (Cu, Cl)</i>	PG 7	<b>Heliogrün dunkel</b> ; blaustichiges Grünpigment mit hohem Färbevermögen; dunkler und brillanter als <b>Chromoxidgrün feurig 18 507</b> <b>Helio green deep</b> ; blue tinted green pigment with a high tinting strength; deeper and more brilliant than <b>Chromium oxide green brilliant 18 507</b>
	18 507 ③ Chromoxidgrün feurig ★★★★★ M <i>Chromium oxide green brilliant</i> ☐ K	Chromoxidhydrat <i>Chromium oxide hydrate</i>	PG 18	Blaugrün; klassisches Grünpigment mit geringem Färbevermögen  <b>Viridian</b> ; blue green; traditional green pigment with a low tinting strength
	18 505 ② Chromoxidgrün stumpf ★★★★★ M <i>Chromium oxide green</i> ■ K	Hämatit (Cr) <i>Hematite (Cr)</i>	PG 17	Olivstichiges Grün; klassisches Grünpigment mit hohem Deckvermögen  <i>Olive tinted green; traditional green pigment with a high opacity</i>
	18 519 ① Böhmisches grüne Erde ★★★★★ M <i>Bohemian green earth</i> ☐ K	Erdpigment <i>Earth pigment</i>	PG 23	Braunstichiges Grün; natürliches Erdpigment mit geringem Färbevermögen  <i>Brown tinted green; natural earth pigment with a low tinting strength</i>
	18 625 ① Eisenoxidgelb ★★★★★ M <i>Ferrite yellow</i> ■ K	Eisenoxidhydrat <i>Iron oxide hydrate</i>	PY 42	Ockergelb; synthetische Variante zum <b>natürlichen Ocker</b> ; deutlich farbstärker  <i>Ochre; synthetic alternative to <b>Natural ochre</b>; clearly stronger in colour</i>
	18 617 ① Lichter Ocker ★★★★★ M <i>Yellow ochre</i> ☑ K	Erdpigment <i>Earth pigment</i>	PY 43	Ockergelb; natürliches Erdpigment  <i>Ochre; natural earth pigment</i>
	18 623 ① Siena natur ★★★★★ M <i>Raw Sienna</i> ☑ K	Erdpigment <i>Earth pigment</i>	PBr 7	Rotbraun; natürliches Erdpigment  <i>Red brown; natural earth pigment</i>
	18 621 ① Goldocker ★★★★★ M <i>Gold ochre</i> ☑ K	Erdpigment <i>Earth pigment</i>	PY 43	Rotstichiges Ockergelb; natürliches Erdpigment  <i>Red tinted ochre; natural earth pigment</i>
	18 679 ① Siena gebrannt ★★★★★ M <i>Burnt Sienna</i> ☑ K	Erdpigment gebrannt <i>Calcinated earth pigment</i>	PBr 7	Braunrot; natürliches Erdpigment mit mittlerer Farbstärke  <i>Brown red; natural earth pigment with a medium colour strength</i>









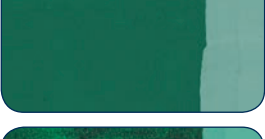

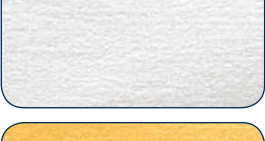
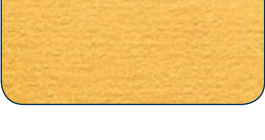
# 48 Pigmente / pigments in 100 ml

Nr. No.	Pigment Pigment	Chem. Zusammensetzung Chemical components	C.I.-Nr. C.I.-No.	Beschreibung Description
	18 649 ① Englishchrot hell ★★★★★ M <i>English red light</i> ■ K	Eisenoxid <i>Iron oxide</i>	PR 101	<b>Eisenoxidrot, Marsrot</b> ; orangestichiges Braunrot; synthetische, farbstärkere Variante zu <b>rotbraunen Erdpigmenten</b> <b>Iron oxide red/Mars red</b> ; orange tinted brown red; synthetic and stronger in colour alternative to red brown earth pigments
	18 655 ① Terra Pozzuoli ★★★★★ M <i>Pozzuoli earth</i> ■ K	Eisenoxid <i>Iron oxide</i>	PR 101	Braunrot; synthetische, farbstärkere Variante des <b>natürlichen roten Erdpigmentes</b> ; etwas rotstichiger und dunkler als <b>Englishchrot hell 18 649</b> <i>Brown red</i> ; synthetic and stronger in colour alternative to <b>natural red earth pigments</b> ; a bit more red tinted and deeper than <b>English red light 18 649</b>
	18 645 ① Pompejanischrot ★★★★★ M <i>Pompeian red</i> ■ K	Eisenoxid <i>Iron oxide</i>	PR 101	Braunrot; synthetische Variante zur <b>gebrannten Toscanischen Erde</b> ; deutlich farbstärker <i>Brown red</i> ; synthetic alternative to <b>Burnt tuscan earth</b> ; clearly stronger in colour
	18 647 ① Caput mortuum dunkel ★★★★★ M <i>Caput mortuum deep</i> ■ K	Eisenoxid <i>Iron oxide</i>	PR 101	Violettstichiges Braunrot <i>Violet tinted brown red</i>
	18 682 ① Umbra natur, grünlich ★★★★★ M <i>Raw umber greenish</i> ■ KI	Erdpigment <i>Earth pigment</i>	PBr 7	Grünstichiges Braun; natürliches Erdpigment mit geringem Färbevermögen <i>Green tinted brown</i> ; natural earth pigment with a low tinting strength
	18 683 ① Umbra gebrannt ★★★★★ M <i>Burnt umber</i> ■ KI	Erdpigment gebrannt <i>Calcinated earth pigment</i>	PBr 7	Tiefes rötliches Braun; natürliches Erdpigment mit mittlerer Farbstärke <i>Deep reddish brown</i> ; natural earth pigment with a medium strength in colour
	18 675 ① Cassler/Vandyckbraun ★★★ O <i>Cassler/Vandyke brown</i> ■	Braunkohle <i>Brown coal</i>	NBr 8	<b>Kölnische Erde/Kohlebraun</b> ; tiefes Braun; natürliches Braunpigment mit mittlerer Lichtechtheit <b>Cologne earth/Coal brown</b> ; deep brown; natural brown pigment with a medium lightfastness
	18 720 ① Graphit ★★★★★ M <i>Graphite</i> ■ K	Makrokristalliner Naturgraphit <i>Crystallized carbon</i>	PBk 10	Grauschwarz; natürliches Schwarzpigment mit silbrigem Schimmer <i>Grey black</i> ; natural black pigment with silveriness
	18 722 ① Rebenschwarz ★★★★★ O <i>Vine black</i> ■ K	Rußverkollerung <i>Nearly pure amorphous carbon of vegetable origin</i>	PBk 8	<b>Kernschwarz</b> ; Schwarz; natürliches Schwarzpigment pflanzlichen Ursprungs <b>Core black</b> ; natural black pigment vegetable origin
	18 723 ① Elfenbeinschwarz ★★★★★ O <i>Ivory black</i> ■ K	Verkohlungsprodukt tierischer Herkunft <i>Amorphous carbon produced by charring animal bones</i>	PBk 9	<b>Beinschwarz/Knochenkohle</b> ; Schwarz; natürliches Schwarzpigment tierischen Ursprungs <b>Bone black/Bone charcoal</b> ; natural black pigment bestial origin
	18 727 ① Eisenoxidschwarz ★★★★★ M <i>Mars black</i> ■ K	Eisenoxid <i>Iron oxide</i>	PBk 11	<b>Standardschwarz</b> ; Schwarz; für alle Maltechniken geeignet <b>Basic black</b> ; black, ideal for all painting techniques
	18 729 ① Lampenschwarz ★★★★★ O <i>Lamp black</i> ■ K	Ruß <i>Lamp black</i>	PBk 7	<b>Flammruß</b> ; Tiefschwarz; extrem feinteiliges Schwarzpigment mit sehr gutem Färbevermögen <b>Channel black</b> ; enormous finely divided black pigment with really great tinting strength

# 24 Pigmente / pigments EXTRA in 50 ml

Nr. No.	Pigment Pigment	Chem. Zusammensetzung Chemical components	C.I.-Nr. C.I.-No.	Beschreibung Description	
	18 234 ①	Nickeltitangelb	Rutil (Ti, Ni, Sb)	PY 53	Helles, grünstichiges Gelb
	★★★★★ M	Nickel yellow titanium	Rutil (Ti, Ni, Sb)		Light, green tinted yellow
	■ K				
	18 226 ①	Kadmiumgelb zitron	Cadmium-Zinksulfid	PY 35	Grünstichiges Gelb
	★★★★ M	Cadmium yellow lemon	Cadmium zinc sulfide		Green tinted yellow
	■ KI				
	18 227 ②	Kadmiumgelb hell	Cadmium-Zinksulfid	PY 35	Gelb
	★★★★★ M	Cadmium yellow light	Cadmium zinc sulfide		Yellow
	■ KI				
	18 236 ①	Chromtitangelb	Rutil (Ti, Cr, Sb)	PBr 24	Bräunliches Gelb
	★★★★★ M	Chrome yellow titanium	Rutil (Ti, Cr, Sb)		Brownish yellow
	■ K				
	18 229 ②	Kadmiumgelb dunkel	Cadmium-Sulfoselenid	PO 20	Orangegelb
	★★★★★ M	Cadmium yellow deep	Cadmiumsulfoselenide		Orange yellow
	■ KI				
	18 231 ③	Kadmiumorange	Cadmium-Sulfoselenid	PO 20	Orange
	★★★★★ M	Cadmium orange	Cadmiumsulfoselenide		Orange
	■ KI				
	18 360 ②	Kadmiumrot hell	Cadmium-Sulfoselenid	PO 20	Gelbliches Rot
	★★★★★ M	Cadmium red light	Cadmiumsulfoselenide		Yellowish red
	■ KI				
	18 361 ③	Kadmiumrot dunkel	Cadmium-Sulfoselenid	PR 108	Bläuliches Rot
	★★★★★ M	Cadmium red deep	Cadmiumsulfoselenide		Bluish red
	■ KI				
	18 363 ③	Cochenillerot	Chinacridon	PR 209	<b>Chinacridonrot</b> ; dunkles, bläuliches Rot; lichtechte Alternative zum <b>echten Karminrot</b>
	★★★★ O	Cochineal red	Quinacridone		<b>Quinacridone red</b> ; deep, bluish red; lightfast alternative to genuine <b>carmine red</b>
	□				
	18 368 ②	Krapprot dunkel	Perylen	PR 179	<b>Perylenrot</b> ; dunkles, blaustichiges Rot; lichtechte Alternative zum <b>echten Krappplack</b>
	★★★★★ O	Madder red deep	Perylene		<b>Perylene red</b> ; deep, blue tinted red; lightfast alternative to genuine <b>Madder lake</b>
	▣ K				
	18 481 ②	Chinacridonviolett	Chinacridon	PV 19	Dunkles Rotviolett; hohe Farbstärke
	★★★★ O	Quinacridone violet	Quinacridone		Deep red violet; high tinting strength
	▣ K				
	18 482 ③	Kobaltviolett	Cobaltphosphat	PV 14	Helles Rotviolett; klassisches Violett pigment mit geringer Farbstärke
	★★★★★ M	Cobalt violet	Cobalt phosphate		Light red violet; traditional violet pigment with low tinting strength
	▣				

# 24 Pigmente / pigments EXTRA in 50 ml

Nr. No.	Pigment Pigment	Chem. Zusammensetzung Chemical components	C.I.-Nr. C.I.-No.	Beschreibung Description
	18 483 ① Manganviolett ★★★★ M <i>Manganese violet</i> ☐	Mangan-Ammoniumphosphat <i>Manganese ammonium pyrophosphate</i>	PV 16	Rotviolett; klassisches Violett pigment mit geringer Farbstärke <i>Red violet; traditional violet pigment with low tinting strength</i>
	18 487 ② Coelinblau ★★★★★ M <i>Cerulean blue</i> ☐ K	Spinell (Co, Sn) <i>Spinel (Co, Sn)</i>	PB 35	Grünstichiges helleres Blau <i>Green tinted light blue</i>
	18 489 ① Kobaltblau hell ★★★★★ M <i>Cobalt blue light</i> ☐ K	Spinell (Co, Al) <i>Spinel (Co, Al)</i>	PB 28	Helleres Blau <i>Lighter blue</i>
	18 494 ② Kobaltblau dunkel ★★★★★ M <i>Cobalt blue deep</i> ☐	Phenakit (Co, Zn, Si) <i>Phenacite (Co, Zn, Si)</i>	PB 74	Rotstichiges Blau; dunkler als <b>Kobaltblau hell 18 489</b> <i>Red tinted blue; deeper than <b>Cobalt blue light 18 489</b></i>
	18 495 ① Phthaloblau rötlich ★★★★ O <i>Phthalo blue reddish</i> ☐ K	Phthalocyanin (Cu) <i>Phthalocyanine (Cu)</i>	PB 15 : 6	<b>Helio blau</b> ; rotstichiges Blaupigment mit sehr hohem Färbevermögen <i><b>Helio blue</b>; red tinted blue pigment with high tinting strength</i>
	18 496 ① Phthalotürkis ★★★★ O <i>Phthalo turquoise</i> ☐ K	Phthalocyanin <i>Phthalocyanine</i>	PB 16	<b>Helio türkis</b> ; grünstichiges Blaupigment mit sehr hohem Färbevermögen <i><b>Helio turquoise</b>; green tinted blue pigment with a high tinting strength</i>
	18 501 ③ Kobalttürkis ★★★★★ M <i>Cobalt turquoise</i> ■ K	Spinell (Co, Ni, Zn, Ti) <i>Spinel (Co, Ni, Zn, Ti)</i>	PG 50	Türkis <i>Turquoise</i>
	18 509 ② Kobaltgrün hell ★★★★★ M <i>Cobalt green light</i> ■ K	Spinell (Co, Zn) <i>Spinel (Co, Zn)</i>	PG 19	Orangestichiges Grün; heller und deutlich gelblicher als <b>Kobaltgrün dunkel 18 502</b> <i>Orange tinted green; lighter and clearly more yellowish than <b>Cobalt green deep 18 502</b></i>
	18 502 ② Kobaltgrün dunkel ★★★★★ M <i>Cobalt green deep</i> ■ K	Spinell (Co, Cr) <i>Spinel (Co, Cr)</i>	PG 26	Dunkles, orangestichiges Grün <i>Deep, orange tinted green</i>
	18 508 ① Phthalogrün hell ★★★★ O <i>Phthalo green light</i> ☐ K	Phthalocyanin (Cu, Cl, Br) <i>Phthalocyanine (Cu, Cl, Br)</i>	PG 36	<b>Helio grün</b> ; gelbstichiges Grün pigment mit sehr hohem Färbevermögen <i><b>Helio green</b>; yellow tinted green pigment with high tinting strength</i>
	18 901 ① Sterling Silber ★★★★★ M <i>Sterling Silver</i> ☐ K	Perlglanzpigment <i>pearlescent pigment</i>		Silberweiß mit schimmerndem Metalleffekt; bitte Farbpasten nur anrühren und nicht anreiben! <i>Silver white with shimmering metallic effect; please stir the colour pastes instead of grinding them!</i>
	18 931 ① Brillant Gold ★★★★★ M <i>Brilliant Gold</i> ☐ K	Perlglanzpigment <i>pearlescent pigment</i>		Goldgelb mit schimmerndem Metalleffekt; bitte Farbpasten nur anrühren und nicht anreiben! <i>Golden yellow with shimmering metallic effect; please stir the colour pastes instead of grinding them!</i>



### Allgemeines zum Anreiben von Pigmenten mit Bindemitteln

Benötigt dazu wird ein Mörser mit Pistill oder eine spezielle Anreibplatte aus angerautem Glas mit einem Glasläufer. Starten Sie am besten mit einer teelöffelgroßen Menge Künstler-Pigment in der Mitte der Reibplatte. Zu dieser geben Sie unter stetigem Mischen mit dem Palettmesser nun so viel des jeweiligen Bindemittels hinzu, dass eine geschmeidige Farbpaste entsteht. Anschließend erfolgt das eigentliche Anreiben der Malfarben durch kreisende Bewegungen mit dem Läufer. Achtung: Je nach verwendetem Pigment variiert der Bindemittelbedarf erheblich! Das richtige Verhältnis Pigment/Bindemittel erkennt man daran, dass die getrockneten Farbaufstriche eine glatte Oberfläche haben und beim Reiben mit dem trockenen Handballen nicht abfärben. Solche „kreibenden“ Mischungen benötigen mehr Bindemittel.

### Reine Ölfarben

Zum Anreiben von Buntpigmenten eignen sich vor allem **Leinöl, gereinigt** 50 015 und **Leinöl, kalt geschlagen** 50 027. Für weiße und helle Farbtöne empfehlen wir **Sonnenblumenöl** 50 025 und/oder **Mohnöl** 50 016. Letztere trocknen zwar langsamer als die beiden Leinölvarianten, zeigen aber eine deutlich geringere Tendenz zum Gilben. Verwendet man **Leinöl-Standöl** 50 005, so erhält man widerstandsfähigere und elastischere Farbfilme, die ebenfalls kaum gilben. Die Zugabe von **Leinöl-Firnis** 50 014 beschleunigt die Trocknung im Vergleich zu reinen Leinölfarben, steigert aber die Gefahr zu gilben. Die Trocknung der Ölfarben kann übrigens durch tropfenweise (!) Zugabe von **Siccativ, dunkel** 50 021 deutlich beschleunigt werden. Unser Tipp: Am einfachsten funktioniert die Herstellung von Ölfarben mit dem gebrauchsfertig eingestellten **Öl-Bindemittel Ready-to-use** 50 810.

### Wässrige Malfarben: Aquarellfarben, Gouachefarben, Acrylfarben und Linoldruckfarben

Zur Herstellung von Aquarell- und Gouachefarben empfehlen wir **Gummi arabicum** 50 302, für Acrylfarben **Acryl Bindemittel** 50 555. Unser Tipp: Bei all diesen Maltechniken fördert ein Tropfen **Ochsengalle** 50 031 die Pigmentbenetzung. Aber auch für diese Farbtypen gibt es die besonders einfach anzuwendenden **Ready-to-use-Bindemittel: Aquarell-Bindemittel Ready-to-use** 50 820, **Gouache-Bindemittel Ready-to-use** 50 830 und **Acryl-Bindemittel Ready-to-use** 50 840, zudem ein **Linol-Bindemittel Ready-to-use** 50 850.

### Ready-to-use-Bindemittel

Eine ideale Basis zur Herstellung eigener Künstlerfarben gerade für Anfänger bieten unsere gebrauchsfertig eingestellten **Ready-to-use-Bindemittel**. Mit ihnen mischen Sie im Handumdrehen

- pastose Ölfarben (**Öl-Bindemittel Ready-to-use** 50 810)
- seidenmatte Acrylfarben (**Acryl-Bindemittel Ready-to-use** 50 840)
- lasierende Aquarellfarben (**Aquarell-Bindemittel Ready-to-use** 50 820)
- samtartige Gouachefarben (**Gouache-Bindemittel Ready-to-use** 50 830)
- konturenscharfe Linoldruckfarben (**Linol-Bindemittel Ready-to-use** 50 850)

**Und so wird's gemacht:** Verreiben Sie eine teelöffelgroße Menge Pigment mit dem **Ready-to-use**-Produkt Ihrer Wahl zu einer geschmeidigen Farbpaste (ideale Werkzeuge: Malmesser, Anreibplatte aus Glas). Auch hier ist das Mischungsverhältnis Bindemittel zu Pigment stark abhängig von der Art des Farbmittels. Unsere Empfehlung:

- Starten Sie beim **Öl-Bindemittel Ready-to-use** 50 810 mit ca. 1 Teil Bindemittel und 1 Teil Pigment (nach Gewicht),
- bei allen anderen **Ready-to-use**-Bindemitteln 50 820, 50 830, 50 840 und 50 850 mit ca. 2 Teilen Bindemittel und 1 Teil Pigment (nach Gewicht) – siehe Schritt für Schritt-Anleitung.

### Temperafarben: Eitemperafarben und Kaseitemperafarben

Die folgenden Rezepturen sind Anhaltspunkte für 1 Teil Künstler-Pigment:

#### • ölarme Eitempera:

Für eine ölarme, magere Bindemittel-Variante einer Eitempera vermischt man 1 Teil gut gerührtes Vollei, 1/2 Teil **Leinöl-Firnis** 50 014, 1/2 Teil **Dammarfirnis, glänzend** 50 008 mit 1 Teil Wasser.

#### • öltreiche Eitempera:

Die öltreiche, fette Variante enthält 1 Teil gut gerührtes Vollei, 1 Teil **Leinöl-Firnis** 50 014 und 1 Teil Wasser.

#### • ölarme Kaseitempera:

Dem **Kasein-Bindemittel** 50 088 werden 10% **Leinöl-Standöl** 50 005 und 10% einer Harzlösung – z. B. 1:3-Lösungen von **Dammar in Stücken** 50 093 oder **Venezianisches Terpentinharz** 50 073 in **Balsam-Terpentinöl** 50 024 – zugegeben.

#### • öltreiche Kaseitempera:

Bei einer fetten Kaseitempera ohne Harzanteil können dem **Kasein-Bindemittel** 50 088 insgesamt bis zu 30% **Leinöl-Standöl** 50 005 zugegeben werden.

Übrigens: Alle hier beschriebenen Tempera-Variationen können nach dem Anreiben mit 3 – 4 Teilen Wasser verdünnt werden. Zudem besteht natürlich die Möglichkeit, den fertigen Mixturen weitere Öle und gelöste Harze zuzumischen!

### Aufbewahrung der selbstgemischten Künstlerfarben

Nicht immer ist es möglich, die selbstangeriebene Malfarben in einer Sitzung zu verbrauchen. Ideal zur temporären Aufbewahrung sind z. B. beschriftete Schraubdeckelgläser. Aber aufgepasst: Gerade wasserhaltige Mixturen wie z. B. Acryl-, Aquarell-, Gouache- und Linoldruckfarben sollten nur wenige Tage – am besten bei Raumtemperatur – gelagert und vor ihrer Verwendung kurz umgerührt werden.

## Schritt für Schritt mit Acryl-Bindemittel Ready-to-use (50 840)



1 Teil Pigment auf Glasplatte anhäufen/  
Start with 1 part pigment on a grinding plate



2 Teile Acryl-Bindemittel Ready-to-use dazugeben/  
Add 2 parts of acrylic binder Ready-to-use

# Binders and formulations

## General information for the grinding of pigments with binder

You are ought to have a mortar and a pestle or a grinding plate with a glass muller made of roughened glass. To start the process, leave a tea spoon sized doze of the pure artists' pigment in the middle of the grinding plate. Thereafter add the desired binders under constant mixing, until a supple colour-paste has been developed. Then follows the real grinding of the colours, by circular movements with the glass muller. Attention: The amount of binder varies to the used pigment! The right proportions have been reached if dried streaks of paint have a smooth surface and do not come off when rubbed with the dry heel of the hand. Mixtures with a "chalky" surface need more binder.

## Pure oil colours

For the grinding of coloured pigments, **linseed oil, purified 50 015** and **linseed oil, cold pressed 50 027** are appropriate. For white and all other lighter colours, **sunflower oil 50 025** and/or **poppy oil 50 016** are recommendable. The latter are drying much slower than the variations of linseed oil, but are showing a considerable lower tendency for yellowing. By using **stand linseed oil 50 005** you obtain a more imperishable and elastic film, which also is rarely yellowing. In comparison to pure linseed-oil colours, the addition of **linseed oil varnish 50 014** accelerates the drying, but raises also their yellowing-tendency. By the way, the drying of oil colours could be accelerated considerably by a drop wise (!) addition of **siccative, dark 50 021**. The truly easiest way for creating an oil-colour is, to utilize the ready-to-use adjusted **oil binder Ready-to-use 50 810**.

## Aqueous colours: water-colours, gouache colours, acrylic colours and linoprint colours

For the creation of water-colours and gouache colours, we recommend you to use **gum arabic 50 302**, for acrylic colours to use **acrylic binder 50 555**. For poor wettable pigments the usage of a drop of **oxgall 50 031** can be helpful. By the way, we are offering easy to handle **Ready-to-use-binder** also for these types of colours: **Water-colour binder Ready-to-use 50 820**, **gouache binder Ready-to-use 50 830**, **acrylic binder Ready-to-use 50 840** and **linoprint binder Ready-to-use 50 850**.

## Ready-to-use binders

Our **Ready-to-use-binders** provide the ideal basis for making your own paints at home in your own studio. You are able to easy mix the following colours:

- Paste-type oil colours (**Oil binder Ready-to-use, 50 810**)
- Satin-matt acrylic colours (**Acrylic binder Ready-to-use, 50 840**)
- Translucent water-colours (**Water-colour binder Ready-to-use, 50 820**)
- Velvety gouache colours (**Gouache binder Ready-to-use, 50 830**)
- High-definition linoprint colours (**Linoprint binder Ready-to-use, 50 850**)

**Here's how to do it:** Grind a teaspoonful of pigment with the **Ready-to-use-product** of your choice to a smooth paste (ideal tools: painting knife and grinding plate made of glass). Also in this case the mixing ratio of binder to pigment very much depends on the type of paint:

- Start off with **oil binder Ready-to-use 50 810** with approx. 1 part binder to 1 part pigment (by weight),
- for all other **Ready-to-use-binders (50 820, 50 830, 50 840 and 50 850)**, use approx. 2 parts binder to one part pigment (by weight) – look for step by step introduction.

## Tempera colours: egg tempera colours and casein tempera colours

The following formulas provide an informative basis for 1 part pigment:

### • small oil-volume egg tempera:

For a small oil-volume/lean binder alternative of an egg tempera use one part of a well stirred egg, half part **linseed oil varnish 50 014**, half part **dammar varnish 50 008** and one part water.

### • oil-rich egg tempera:

The oil-rich, fatty alternative contains one part well stirred egg, one part **linseed oil varnish 50 014** and one part water.

### • small oil-volume casein tempera:

For creating a lean casein tempera it is necessary to add 10% of **stand linseed oil 50 005** and 10% of a resin dilution – e.g. 1:3 dilutions of **dammar in pieces 50 093** or **venetian turpentine resin 50 073** into **gum spirit of turpentine 50 024** – to **casein binding medium 50 088**.

### • oil-rich casein tempera:

For a fatty casein tempera without resin 30% of **stand linseed oil 50 005** can be mixed into **casein binding medium 50 088**.

By the way, the resultant tempera binders can be diluted with 3 – 4 parts water after grinding. And of course: Additional oils and dissolved resins can be emulsified in the finished tempera colours.

## Storage of homemade artists' colours

Honestly it's not always possible to consume your homemade artists' colour in a single painting session. Ideal for temporary storage are labelled screw-top jars. Attention: aqueous mixtures such as acrylic, water-colour, gouache and linoprint paints should only be stored for a few days – ideally at room temperature.

## Step by step with acrylic binder Ready-to-use (50 840)

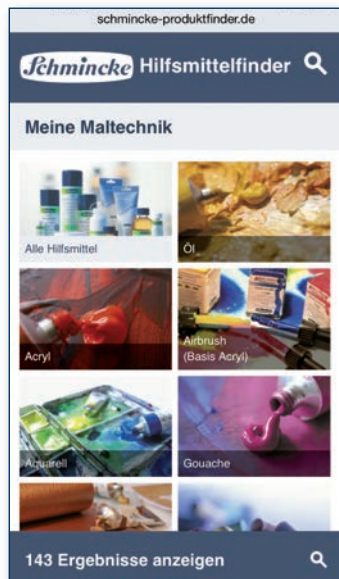


Pigment und Bindemittel mit einem Palettmesser vermengen/  
Mix pigment and binder thoroughly with a painting knife



Bei Bedarf die Masse mit einem Glasläufer anreiben/  
If necessary grind with a glass muller

Maltechnik / Painting technique	Art.Nr. / Art.-No.	Produkt	Product
<b>Öl / Oil</b>	50 027	Leinöl, kalt geschlagen	linseed oil, cold pressed
	50 015	Leinöl, gereinigt	linseed oil, purified
	50 014	Leinöl-Firnis	linseed oil varnish
	50 005	Leinöl-Standöl	stand linseed oil
	50 025	Sonnenblumenöl	sunflower oil
	50 016	Mohnöl, gebleicht	poppy oil, bleached
	50 810	Öl-Bindemittel Ready-to-use	oil binder Ready-to-use
<b>Acryl / Acrylic</b>	50 555	Acryl-Bindemittel	acrylic binder
	50 840	Acryl-Bindemittel Ready-to-use	acrylic binder Ready-to-use
<b>Aquarell, Gouache / Water-colour, Gouache</b>	50 302	Gummi arabicum	gum arabic
	50 820	Aquarell-Bindemittel Ready-to-use	water-colour binder Ready-to-use
	50 830	Gouache-Bindemittel Ready-to-use	gouache binder Ready-to-use
<b>Linoldruck / Linoprint</b>	50 850	Linol-Bindemittel Ready-to-use	linoprint binder Ready-to-use
<b>Tempera / Tempera</b>	50 088	Kasein-Bindemittel	casein binding medium
	50 008	Dammarfirnis, glänzend	dammar varnish, glossy
	50 093	Dammar in Stücken	dammar in pieces
	50 073	Venezianisches Terpentinharz	venetian turpentine resin
<b>Weitere Hilfsmittel / Further mediums</b>	50 031	Ochsengalle	oxgall
	50 021	Siccativ, dunkel	siccative, dark
	50 019	Terpentinersatz	turpentine substitute
	50 024	Balsam-Terpentinöl, destilliert	gum spirit of turpentine, distilled
	50 102	Terpentinöl, gereinigt	oil of turpentine, refined



Weitergehende Produktinformationen, Technische Merkblätter und Sicherheitsdatenblätter entnehmen Sie bitte unserer Homepage [www.schmincke.de](http://www.schmincke.de) oder aber unserem interaktiven Hilfsmittelfinder im Internet unter [www.schmincke-produktfinder.de](http://www.schmincke-produktfinder.de). Über das umfangreiche Hilfsmittel-Sortiment informiert Sie auch unsere Broschüre 95 450 ausführlich. Zudem möchten wir Sie auf die Broschüre zu unserem Sortiment „Echte Künstler-Bronzen, Sorte 15“ 95 415 aufmerksam machen.

For further product information, technical data sheets and safety data sheets please refer to our homepage [www.schmincke.de](http://www.schmincke.de) or to our interactive medium finder on the internet [www.schmincke-produktfinder.de](http://www.schmincke-produktfinder.de). Also the Schmincke mediums brochure No. 95 450 gives you detailed information about our painting mediums. Please also have a closer view to the brochure for our assortment "Genuine Artists' Bronzes, series 15" No. 95 415.

deutsch



english



Die Farbkarten dieses Prospektes sind ein 8-Farben-Offsetdruck – also fast farbgenau. Wegen ständiger Bemühungen um weitere Verbesserungen und wegen gelegentlicher Veränderungen im Rohstoff-, insbesondere Pigmentmarkt, sind begrenzte Farbtönschwankungen zwischen Farbkarten und Etiketten möglich sowie Textabweichungen aufgrund unterschiedlicher Druckdaten.

Die beschriebenen Produkteigenschaften und Anwendungsbeispiele sind im Schmincke-Labor getestet. Die Angaben basieren auf unseren derzeitigen technischen Erkenntnissen und Erfahrungen. Aufgrund der Anwendungsvielfalt bezüglich der Maltechniken, Materialien und Verarbeitungsbedingungen sowie zahlreicher möglicher Einflüsse stellen die Informationen allgemeine Anwendungsbereiche dar. Eine rechtlich verbindliche Zusicherung bestimmter Eigenschaften oder der Eignung für einen bestimmten Einsatzzweck kann aus unseren Angaben nicht abgeleitet werden; daher ist der Gebrauch der Produkte auf die speziellen Bedingungen des Anwenders abzustimmen und durch Versuche zu überprüfen. Aus diesen Gründen können wir keine Gewährleistung für Produkteigenschaften und/oder Haftung für Schäden übernehmen, die in Verbindung mit der Anwendung unserer Produkte entstehen.

This brochure has been printed in a 8-colour offset print – that means tones are only nearly identical with original colours. Due to steady efforts for further improvements and changes in the raw material and pigment field slight colour deviations and differences in wording are possible between printed colour charts and labels according to differing printing dates.

The product characteristics and application examples described have been tested in the Schmincke laboratory. The details are based on our current technical knowledge and experience. Owing to the diversity of painting techniques, materials, processing conditions and numerous other possible influences, the information applies to general areas of application. No legally binding guarantee of specific characteristics or of suitability for a specific purpose can be taken from our information; consequently, the use of products must be adapted to the specific conditions of the user and must be checked by doing tests. For this reason, we cannot give any warranty for product characteristics or accept any liability for any damages arising in connection with the use of our products.

# Sicherheitsdatenblatt gemäß 1907/2006/EG

Artikel: **series 14 - HORADAM AQUARELL**

Version: 2

**Schmincke**

Feinste Künstlerfarben

Druckdatum 10.11.2014

Seite 1 von 3

## **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

### 1.1 Product identifier

Name: identification of the substance series 14 - HORADAM AQUARELL

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

\* General use Products for creation of art.

### 1.3 Details of the supplier of the safety data sheet

Manufacturer H. Schmincke & Co. GmbH & Co. KG  
Otto-Hahn-Str. 2  
D - 40699 Erkrath  
Tel. +49 (0) 211-2509-0  
Fax. +49 (0) 211-2509-497  
info@schmincke.de  
www.schmincke.de

Dept. responsible for information Schmincke-lab:  
mo-th 8.00-16.30,fr 8.00-13.30  
Tel. +49 (0) 211-2509-474  
labor@schmincke.de

### 1.4 Emergency telephone number

\* Name Emergencycall Berlin  
(24h - counseling in german and english)  
\* Phone # +49 (0) 30 / 30 68 67 90

## **SECTION 2: Hazards identification**

### 2.1 Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC

Nature of Hazard The product does not require a hazard warning label in accordance with EC directives/ GefStoffV (German regulations on dangerous substances).

### 2.2 Label elements

Labelling (67/548/EEC or 1999/45)

Nature of Hazard The product does not require a hazard warning label in accordance with EC directives/ GefStoffV (German regulations on dangerous substances).

## **SECTION 3: Composition / information on ingredients**

### 3.1 Substances

# Sicherheitsdatenblatt gemäß 1907/2006/EG

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Chemical characterization  
3.2 Mixtures

natural resin pigments water

Additional information

The colour 14 102 contains zinc oxide. (see separate safety data sheet)

The colours 14 230, 481, 486, 910, 930, 940 contain zinc oxide and/or triarylcarbonium-pigments. (see separate material safety data sheet)

The colours 14 223, 224, 225, 226, 227, 228, 347, 348, 349, 350 contain cadmium-containing pigments. The use of cadmium containing pigments is limited to artist colors.

further information: see appendix

## **SECTION 4: First aid measures**

4.1 Description of first aid measures

General information

In case of problems seek medical advice and show the package or label

## **SECTION 5: Firefighting measures**

5.1 Extinguishing media

Suitable extinguishing media

Product itself is non-combustible; adapt fire extinguishing measures to surrounding areas. Compatible with all usual extinguishing media.

## **SECTION 6: Accidental release measures**

6.3 Methods and material for containment and cleaning up

Additional information

When picked up, treat material as prescribed under heading "Disposal".

## **SECTION 7: Handling and storage**

## **SECTION 8: Exposure controls/personal protection**

## **SECTION 9: Physical and chemical properties**

9.1 information on basic physical and chemical properties

Physical state

solid (pan) / paste (tube)

Colour

pigmented

Odour

characteristic

Density

Density

1,3 - 2,5 g/ml

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## **SECTION 10: Stability and reactivity**

## **SECTION 11: Toxicological information**

### 11.1 Information on toxicological effects

General remarks

General remarks

By appropriate use of the product no health damage is known.

## **SECTION 12: Ecological information**

### 12.6 Other adverse effects

General information

Moderately/partially biodegradable

## **SECTION 13: Disposal considerations**

### 13.1 Waste treatment methods

Product

Recommendation

080112 waste paint and varnish other than those mentioned in 080111

## **SECTION 14: Transport information**

### 14.6 Special precautions for user

Further information

The product does not constitute a hazardous substance in national / international road, rail, sea and air transport.

## **SECTION 15: Regulatory information**

## **SECTION 16: Other information**

R phrase(s)

R25 Toxic if swallowed.

R43 May cause sensitisation by skin contact.

R62 Possible risk of impaired fertility.

Further information

This information is based on our current state of knowledge and describes the security standards applicable to our product for the purpose provided. The information provided here does not constitute a legally binding warranty of specific characteristics or of suitability for a specific application use of the product is thus to be adapted to the user's special conditions and checked by preliminary tests. We are thus unable to guarantee product characteristics or accept a liability for damage arising in connection with the use of our products.

**Appendix for material safety data sheet no.: 14 000 000**  
 - HORADAM® AQUARELL finest artists' water-colours -

art. no.	art. name	C.I.	CAS-no.
14 101	titanium-opaque white.....	PW 6	Titanium dioxide .....13463-67-7
14 206	titanium yellow.....	PY 53	Rutile (Ti, Ni, Sb).....8007-18-9
14 207	vanadium yellow.....	PY 184	Bismuth vanadate.....14059-33-7
14 208	aureolin modern.....	PY 151	Benzimidazolone.....61036-28-0
14 209	translucent yellow.....	PY 150	Azo-nickel-complex.....68511-62-6
14 210	gamboge gum modern.....	PY 150; PY 153	Azo-nickel-complex; Nickel-complex .....68511-62-6; 68859-51-8
14 211	chrome yellow lemon, no lead.....	PY 175	Benzimidazolone.....35636-63-6
14 212	chrome yellow light, no lead.....	PY 153; PY 155	Nickel-complex; Disazo.....68859-51-8; 68516-73-4
14 213	chrome yellow deep.....	PY 65	Monoazo.....6528-34-3
14 214	chrome orange, no lead.....	PO 62	Benzimidazolone.....75601-68-2
14 215	lemon yellow.....	PY 3	Monoazo.....6486-23-3
14 216	pure yellow.....	PY 154	Benzimidazolone.....68134-22-5
14 218	translucent orange.....	PO 71	Diketo-pyrrolo-pyrrol.....-
14 220	Indian yellow.....	PY 110; PY 154	Isoidindolinone; Benzimidazolone.....5590-18-1; 68134-22-5
14 221	jaune brilliant dark.....	PW 6; PY 53; PBr 24	Titanium dioxide; Rutile (Ti, Ni, Sb);.....13463-67-7; 8007-18-9; Rutile (Ti, Cr, Sb).....68186-90-3
14 223	cadmium yellow lemon.....	PY 35	Cadmium-zinc-sulphide.....8048-07-5; 7727-43-7
14 224	cadmium yellow light.....	PY 35	Cadmium-zinc-sulphide.....8048-07-5; 7727-43-7
14 225	cadmium yellow middle.....	PY 35	Cadmium-zinc-sulphide.....8048-07-5; 7727-43-7
14 226	cadmium yellow deep.....	PY 35; PO 20	Cadmium-zinc-sulphide;.....8048-07-5; 7727-43-7; Cadmiumsulfofelenide.....12656-57-4
14 227	cadmium orange light.....	PO 20	Cadmiumsulfofelenide.....12656-57-4
14 228	cadmium orange deep.....	PO 20	Cadmiumsulfofelenide.....12656-57-4
14 229	Naples yellow.....	PW 6; PY 53; PBr 24	Titanium dioxide; Rutile (Ti, Ni, Sb);.....13463-67-7; 8007-18-9; Rutile (Ti, Cr, Sb).....68186-90-3
14 345	dark red.....	PR 170	Naphthol AS.....2786-76-7
14 347	cadmium red middle.....	PR 108	Cadmiumsulfofelenide.....58339-34-7; 7727-43-7
14 348	cadmium red orange.....	PO 20	Cadmiumsulfofelenide.....12656-57-4
14 349	cadmium red light.....	PO 20	Cadmiumsulfofelenide.....12656-57-4
14 350	cadmium red deep.....	PR 108	Cadmiumsulfofelenide.....58339-34-7; 7727-43-7
14 351	ruby red.....	PV 19	Quinacridone.....1047-16-1
14 352	magenta.....	PV 42	Quinacridone.....1047-16-1
14 353	permanent carmine.....	PV 19	Quinacridone.....1047-16-1
14 354	madder red dark.....	PR 254; PV 42	Diketo-pyrrolo-pyrrol; Quinacridone.....122390-98-1; ...
14 356	rose madder.....	PR 48:4; PR 83:1	BONS, Mn; Anthrachinone, Al.....5280-66-0; 72-78-0
14 357	alizarin-crimson.....	PR 83:1	Anthrachinone, Al.....72-78-0
14 358	madder lake deep.....	PR 83:1; PR 177	Anthrachinone, Al; Anthanthrone.....72-78-0; 4051-63-2
14 360	permanent red orange.....	PO 62; PR 242	Benzimidazolone; Disazocondensation.....75601-68-2; 118440-67-8
14 361	permanent ed.....	PO 62; PR 242	Benzimidazolone; Disazocondensation.....75601-68-2; 118440-67-8
14 363	scarlet red.....	PR 254	Diketo-pyrrolo-pyrrol.....122390-98-1
14 365	vermillion.....	PR 255	Diketo-pyrrolo-pyrrol.....120500-90-5
14 366	deep red.....	PR 179	Perylen.....5521-31-3
14 367	purple magenta.....	PR 122	Quinacridone.....980-26-7
14 368	quinacridone violet.....	PV 19	Quinacridone.....1047-16-1
14 474	manganese violet.....	PV 16	Mangan-ammoniumphosphate.....10101-66-3
14 475	helio turquoise.....	PB 16	Phthalocyanine.....574-93-6
14 476	Mauve.....	PV 23	Dioxazine.....6358-30-1
14 478	helio blue reddish.....	PB 15:6	Phthalocyanine (Cu).....147-14-8
14 479	helio cerulean.....	PB 15:3	Phthalocyanine (Cu).....147-14-8
14 480	mountain blue.....	PW 5; PB 29; PG 7	Barium sulfate; Sodium-aluminium-silicate;.....1345-05-7; 57455-37-5; Phthalocyanine (Cu, Cl).....1328-53-6
14 482	Delft blue.....	PB 60	Indanthrone.....81-77-6
14 484	phthalo blue.....	PB 15:1	Phthalocyanine (Cu).....147-14-8
14 485	indigo.....	PB 15:1; PB 66	Phthalocyanine (Cu); Indigo, synthetic.....147-14-8; 482-89-3
14 487	cobalt blue light.....	PB 28	Spinel (Co, Al).....1345-16-0
14 488	cobalt blue deep.....	PB 28; PB 74	Spinel (Co, Al); Phenakit (Co, Zn, Si).....1345-16-0; 68412-74-8
14 491	Paris blue.....	PB 15; PB 15:1; PB 27	Phthalocyanine (Cu); Phthalocyanine (Cu); .....147-14-8; 147-14-8; Iron-cyan-complex.....14038-43-8; 25869-98-1
14 492	Prussian blue.....	PB 27	Iron-cyan-complex.....14038-43-8; 25869-98-1
14 494	ultramarine finest.....	PB 29	Sodium-aluminium-silicate.....57455-37-5
14 495	ultramarine violet.....	PV 15	Sodium-aluminium-silicate.....12769-96-9
14 496	ultramarine blue.....	PB 15:1; PB 29	Phthalocyanine (Cu); Sodium-aluminium-silicate.....147-14-8; 57455-37-5
14 498	dark blue indigo.....	PB 60	Indanthrone.....81-77-6
14 499	cobalt cerulean.....	PB 36	Spinel (Co, Al, Cr).....68187-11-1
14 509	cobalt turquoise.....	PG 50	Spinel (Co, Ni, Zn, Ti).....68186-85-6
14 510	cobalt green turquoise.....	PB 36	Spinel (Co, Al, Cr).....68187-11-1
14 511	chromium oxide green brilliant.....	PG 7; PG 18	Phthalocyanine (Cu, Cl);.....1328-53-6; Hydrated chromium oxide.....12001-99-9

**Appendix for material safety data sheet no.: 14 000 000**  
 - HORADAM® AQUARELL finest artists' water-colours -

14 512	chromium oxide green .....	PG 17	Hematite (Cr) .....	1308-38-9
14 514	helio green .....	PG 36	Phthalocyaninecomplex (Cu, Cl, Br).....	14302-13-7
14 515	olive green .....	PB 15:1; PG 8	Phthalocyanine (Cu); Phthalocyanine (Cu, Cl) ..	147-14-8; 1328-53-6
14 516	green earth .....	PG 7; PBr 7	Phthalocyanine (Cu, Cl); Earth pigment .....	1328-53-6; -
14 519	phthalo green .....	PG 7	Phthalocyanine (Cu, Cl).....	1328-53-6
14 521	Hooker's green .....	PY 42; PB 15:3; PG 7	Hydrated iron oxide; Phthalocyanine (Cu); .....	20344-49-4; 147-14-8; 1328-53-6
14 524	may green .....	PY 151; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl).....	61036-28-0; 1328-53-6
14 525	olive green yellowish .....	PO 62; PG 36	Benzimidazolone; .....	75601-68-2; 14302-13-7
14 526	permanent green .....	PY 154; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl).....	68134-22-5; 1328-53-6
14 528	Prussian green .....	PB 60; PG 7	Indanthrone; Phthalocyanine (Cu, Cl).....	81-77-6; 1328-53-6
14 530	sap green .....	PY 153; PG 7	Nickel-complex; Phthalocyanine (Cu, Cl) .....	68859-51-8; 1328-53-6
14 533	cobalt green dark .....	PG 26	Spinel (Co, Cr).....	68187-49-5
14 534	permanent green olive .....	PO 62; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl).....	75601-68-2; 1328-53-6
14 535	cobalt green pure .....	PG 19	Spinel (Co, Zn) .....	8011-87-8
14 536	green yellow .....	PY 150; PBk 7	Azo-nickel-complex; Lamp black.....	68511-62-6; 1333-86-4
14 645	Indian red .....	PR 101; PR 206	Iron oxide; Quinacridone .....	1309-37-1; 1047-16-1; 1503-48-6
14 648	translucent brown .....	PBr 41	Spinel (Zn, Fe, Cr) .....	68186-88-9
14 649	English Venetian red .....	PR 101	Iron oxide .....	1309-37-1
14 652	walnut brown .....	PBr 33	Spinel (Zn, Fe, Cr) .....	68186-88-9
14 654	gold brown .....	PY 65; PBr 41	Monoazo; Spinel (Zn, Fe, Cr) .....	6528-34-3; 68186-88-9
14 655	yellow ochre .....	PY 42	Hydrated iron oxide .....	20344-49-4
14 656	yellow raw ochre .....	PY 42; PY 43	Hydrated iron oxide; Hydrated iron oxide .....	20344-49-4; 1309-37-1
14 659	titanium gold ochre .....	PBr 24	Rutile (Ti, Cr, Sb).....	68186-90-3
14 660	raw Sienna .....	PY 43; PBr 7	Hydrated iron oxide; Earth pigment .....	1309-37-1; -
14 661	burnt Sienna .....	PR 101; PBk 9	Iron oxide; Carbonized bones of animals .....	1309-37-1; 8021-99-6
14 662	sepia brown tone .....	PR 166; PBr 7; PBk 9	Naphthol AS; Earth pigment; .....	5280-68-2; -;
14 663	sepia brown .....	PB 15:1; PBr 7; PBk 9	Carbonized bones of animals .....	8021-99-6
14 666	Pozzuoli earth .....	PR 101; PR 206	Phthalocyanine (Cu); Earth pigment; .....	147-14-8; -;
14 667	raw umber .....	PBr 7	Carbonized bones of animals .....	8021-99-6
14 668	burnt umber .....	PBr 7	Iron oxide; Quinacridone .....	1309-37-1; 1047-16-1; 1503-48-6
14 669	Vandyke brown .....	PY 153; PBr 7; PBk 7	Earth pigment .....	-
14 670	madder brown .....	PR 206	Earth pigment .....	-
14 780	ivory black .....	PBk 9	Nickel-complex; Earth pigment; Lamp black ..	68859-51-8; -; 1333-86-4
14 781	blue black .....	PBk 6	Quinacridone .....	1047-16-1; 1503-48-6
14 782	neutral tint .....	PR 122; PB 60; PBk 7	Carbonized bones of animals .....	8021-99-6
14 783	Schmincke Payne's grey ....	PR 101; PB 29; PBk 7	Lamp black .....	1333-86-4
14 785	neutral grey .....	PO 62; PR 255; PB 60	Quinacridone; Indanthrone; Lamp black .....	980-26-7; 81-77-6; 1333-86-4
14 786	charcoal grey .....	PBk 7	Iron oxide; Sodium-aluminium-silicate; .....	1309-37-1; 57455-37-5;
14 787	Payne's grey bluish .....	PBk 15:6; PBk 6	Lamp black .....	1333-86-4
14 893	gold .....	effect-pigment	Benzimidazolone; Diketo-pyrrolo-pyrrol; .....	75601-68-2; 120500-90-5;
14 894	silver .....	effect-pigment	Indanthrone .....	81-77-6
			Lamp black .....	1333-86-4
			Iron oxide black; Lamp black .....	1317-61-9; 1333-86-4
			Effect-pigment .....	-
			Effect-pigment .....	-



article **HORADAM AQUARELL (ZnO / triarylcarb.)**  
**14000001** version: 1

Date: 20.10.2006  
Page 1 of 4

## 1. Identification of the substance/preparation and of the company/undertaking

Commercial Product name series 14 - HORADAM AQUARELL  
Use of the substance for colour with zinc oxide- and triarylcarbonium-pigments  
Company finest artists' water-colours for artistic painting techniques

H.Schmincke & Co. GmbH & Co. KG  
Otto-Hahn-Strasse 2  
D-40699 Erkrath  
www.schmincke.de

Phone # +49 (0) 211 - 25 09 - 0  
Telefax # +49 (0) 211 - 25 09 - 461  
Information Schmincke-laboratory: mo.-th. 8.00-16.30, fr. 8.00-13.30  
tel.: +49 (0) 211 - 2509 - 474  
eMail: labor@schmincke.de

Emergency Information  
Emergencycall Berlin: +49 (0) 30 - 1 92 40

## 2. Composition/information on ingredients

Chemical characterization (substance) pigments water gum arabic solution  
Dangerous constituents

zinc oxide: 5 % - 25 % CAS-number: 1314-13-2  
R phrase(s): 50/53

Xanthenlacquer/triarylcarbonium: 2 % - 10 % CAS-number: div. (see appendix)  
R phrase(s): 65 - 66

Chloracetamide: < 0,1 % CAS-Number: 79-07-2  
R phrase(s): 25 - 43 - 62

Additional information further information: see appendix

## 3. Hazard identification

Classification  
Nature of Hazard N Dangerous for the environment



R phrase(s) R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 4. First aid measures

General information In case of problems seek medical advice and show the package or label

article **HORADAM AQUARELL (ZnO / triarylcarb.)**  
**14000001** version: 1

Date: 20.10.2006  
Page 2 of 4

After skin contact When in contact with the skin, clean with soap and water.  
After eye contact In case of contact with eyes rinse thoroughly with water. In case of irritation consult an oculist.  
After swallowing By continuous complaints consult a physician.

## **5. Fire fighting measures**

Suitable extinguishing media Product itself is non-combustible; adapt fire extinguishing measures to surrounding areas. Compatible with all usual extinguishing media.  
Extinguisher unsuitable on safety grounds

## **6. Accidental release measures**

Additional information When picked up, treat material as prescribed under heading "Disposal".

## **7. Handling and storage**

Particular use(s)  
Particular use(s) No special measures necessary if stored and handled as prescribed.

## **8. Exposure controls / personal protection**

Critical values of exposure  
zinc oxide CAS-number: 1314-13-2  
AGW according to TRGS 900 -> 3 mg/m<sup>3</sup> alveole-usual dust  
AGW according to TRGS 900 -> 10 mg/m<sup>3</sup> in-breathable dust

Limitation and surveillance of the exposure at the workplace.

General protection and hygiene measures No special measures necessary if used correctly.

## **9. Physical and chemical properties**

Appearance  
Form solid (pan) / paste (tube)  
Colour pigmented  
Odour characteristic  
Safety relevant data  
Density 1,6 - 1,8 g/ml

## **10. Stability and reactivity**

## **11. Toxicological information**

article **HORADAM AQUARELL (ZnO / triarylcarb.)**  
**14000001** version: 1

Date: 20.10.2006  
Page 3 of 4

## General remarks

General remarks By appropriate use of the product no health damage is known.

## 12. Ecological information

### Ecotoxicological effects

Aquatic toxicity EC50 Selenastrum capricornutum > 170 µg/l (72h) The values mentioned are those of the active ingredient. (zinc oxide)

## 13. Disposal considerations

### Product

Recommendation 080112 waste paint and varnish other than those mentioned in 080111

## 14. transport information

### Overland transport

UN No. 3082  
Class 9  
Packaging group III  
Description of goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazardous Material zinc oxide  
Triarylcarbonium-pigment

### Transport by sea

UN No. 3082  
Class 9  
Subrisk MP  
Packing Group III  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazardous Material zinc oxide  
triarylcarbonium-pigment  
EmS number F-A, S-F

### Air transport

UN No. 3082  
Class 9  
Subrisk -  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazardous Material zinc oxide  
triarylcarbonium-pigment  
Packing Group III

### Additional information

## 15. Regulatory information

article **HORADAM AQUARELL (ZnO / triarylcarb.)**  
**14000001** version: 1

Date: 20.10.2006  
Page 4 of 4

## Classification

Nature of Hazard	N Dangerous for the environment
R phrase(s)	R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S phrase(s)	S2 Keep out of the reach of children. S46 If swallowed, seek medical advice immediately and show this container or label. S60 This material and its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/safety data sheets.
Text for labelling	The product is not characterized on the bundle in accordance with 1999/45/EG article 12.c.

## 16. Other information

R phrase(s)	R25 Toxic if swallowed. R43 May cause sensitisation by skin contact. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R62 Possible risk of impaired fertility.
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Further remarks	This information is based on our current state of knowledge and describes the security standards applicable to our product for the purpose provided. The information provided here does not constitute a legally binding warranty of specific characteristics or of suitability for a specific application use of the product is thus to be adapted to the user's special conditions and checked by preliminary tests. We are thus unable to guarantee product characteristics or accept an liability for damage arising in connection with the use of our products.
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**Appendix for material safety data sheet no.: 14 000 001**  
- HORADAM® AQUARELL finest artists' water-colours -

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Colours with zinc oxide

<b>art. no.</b>	<b>art. name</b>	<b>C.I.</b>	<b>CAS-no.</b>
14 230	Naples yellow reddish .....	PW 4; PW 6; PY 42; PR 242	Zinc oxide; Titanium dioxide; ..... 1345-05-7; 13463-67-7; Hydrated iron oxide; Disazocondensation ..... 20344-49-4; 118440-67-8
14 481	cerulean blue tone .....	PW 4; PB 15:3	Zinc oxide; Phthalocyanine (Cu)..... 1314-13-2; 147-14-8
14 486	cobalt blue tone.....	PW 4; PB 29	Zinc oxide; Sodium-aluminium-silicate ..... 1314-13-2; 57455-37-5

Colours with triarylcarbonium-pigments

<b>art. no.</b>	<b>art. name</b>	<b>C.I.</b>	<b>CAS-no.</b>
14 910	brilliant blue violet.....	PV 3	Triarylcarbonium ..... 90367-48-9
14 930	brilliant purple .....	PR 81:1	Triarylcarbonium ..... 6410-41-9
14 940	brilliant red violet .....	PV 1	Triarylcarbonium ..... -

article **HORADAM AQUARELL - permanent Chinese white**  
**14102000** version: 1

Date: 18.10.2006  
Page 1 of 4

## 1. Identification of the substance/preparation and of the company/undertaking

Commercial Product name art.nr.: 14 102 - HORADAM AQUARELL permanent Chinese white  
Use of the substance finest artists' water-colour for artistic painting techniques  
Company

H.Schmincke & Co. GmbH & Co. KG  
Otto-Hahn-Strasse 2  
D-40699 Erkrath  
www.schmincke.de

Phone # +49 (0) 211 - 25 09 - 0

Telefax # +49 (0) 211 - 25 09 - 461

Information Schmincke-laboratory: mo.-th. 8.00-16.30, fr. 8.00-13.30  
tel.: +49 (0) 211 - 2509 - 474  
eMail: labor@schmincke.de

Emergency Information

Emergencycall Berlin: +49 (0) 30 - 1 92 40

## 2. Composition/information on ingredients

Chemical characterization (substance) natural resin pigments water  
CI-Number PW 4 - zinc oxide - CAS-number: 1314-13-2  
Dangerous constituents

zinc oxide: 50 % - 55 % CAS-number: 1314-13-2  
R phrase(s): 50/53

Chloracetamide: < 0,1 % CAS-Number: 79-07-2  
R phrase(s): 25 - 43 - 62

## 3. Hazard identification

Classification

Nature of Hazard N Dangerous for the environment



R phrase(s) R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 4. First aid measures

General information In case of problems seek medical advice and show the package or label  
After skin contact When in contact with the skin, clean with soap and water.  
After eye contact In case of contact with eyes rinse thoroughly with water. In case of irritation consult an oculist.  
After swallowing By continuous complaints consult a physician.

article **HORADAM AQUARELL - permanent Chinese white**  
**14102000** version: 1

Date: 18.10.2006  
Page 2 of 4

## 5. Fire fighting measures

Suitable extinguishing media

Product itself is non-combustible; adapt fire extinguishing measures to surrounding areas. Compatible with all usual extinguishing media.

## 6. Accidental release measures

Additional information

When picked up, treat material as prescribed under heading "Disposal".

## 7. Handling and storage

Particular use(s)

Particular use(s)

No special measures necessary if stored and handled as prescribed.

## 8. Exposure controls / personal protection

Critical values of exposure

zinc oxide CAS-number: 1314-13-2

AGW according to TRGS 900 -> 3 mg/m<sup>3</sup> alveole-usual dust

AGW according to TRGS 900 -> 10 mg/m<sup>3</sup> in-breathable dust

Limitation and surveillance of the exposure at the workplace.

General protection and hygiene measures

No special measures necessary if used correctly.

## 9. Physical and chemical properties

Appearance

Form

solid (pan) / paste (tube)

Colour

white

Odour

characteristic

Safety relevant data

Density

1,6 1,8 g/ml

## 10. Stability and reactivity

## 11. Toxicological information

General remarks

General remarks

By appropriate use of the product no health damage is known.

## 12. Ecological information

article **HORADAM AQUARELL - permanent Chinese white**  
**14102000** version: 1

Date: 18.10.2006  
Page 3 of 4

## Ecotoxicological effects

Aquaticity

EC50 Selenastrum capricornutum > 170 µg/l (72h) The values mentioned are those of the active ingredient.

## **13. Disposal considerations**

### Product

Recommendation 080112 waste paint and varnish other than those mentioned in 080111

## **14. transport information**

### Overland transport

UN No. 3082  
Class 9  
Packaging group III  
Description of goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazardous Material zinc oxide

### Transport by sea

UN No. 3082  
Class 9  
Subrisk MP  
Packing Group III  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazardous Material ZINC OXIDE  
EmS number F-A, S-F

### Air transport

UN No. 3082  
Class 9  
Subrisk -  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Hazardous Material ZINC OXIDE  
Packing Group III

### Additional information

Additional information Tuben und Näpfcchen wurden vereinfacht unter UN 3082 zusammengefasst.

## **15. Regulatory information**

### Classification

Nature of Hazard N Dangerous for the environment  
R phrase(s) R50/53 Very toxic to aquatic organisms, may cause long-term adverse



article **HORADAM AQUARELL - permanent Chinese white**  
**14102000** version: 1

Date: 18.10.2006  
Page 4 of 4

R phrase(s)	effects in the aquatic environment.
S phrase(s)	S2 Keep out of the reach of children. S46 If swallowed, seek medical advice immediately and show this container or label. S60 This material and its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/safety data sheets.
Text for labelling	The product is not characterized on the bundle in accordance with 1999/45/EG article 12.c.

## **16. Other information**

R phrase(s)	R25 Toxic if swallowed. R43 May cause sensitisation by skin contact. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R62 Possible risk of impaired fertility.
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Further remarks	This information is based on our current state of knowledge and describes the security standards applicable to our product for the purpose provided. The information provided here does not constitute a legally binding warranty of specific characteristics or of suitability for a specific application use of the product is thus to be adapted to the user's special conditions and checked by preliminary tests. We are thus unable to guarantee product characteristics or accept an liability for damage arising in connection with the use of our products.
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article **series 16 - AKADEMIE Aquarell**  
**16000000** version: 1

Date: 18.10.2006  
Page 1 of 3

## 1. Identification of the substance/preparation and of the company/undertaking

Commercial Product name series 16 - AKADEMIE Aquarell  
Use of the substance fine artists' water-colours for artistic painting techniques  
Company  
H.Schmincke & Co. GmbH & Co. KG  
Otto-Hahn-Strasse 2  
D-40699 Erkrath  
www.schmincke.de  
Phone # +49 (0) 211 - 25 09 - 0  
Telefax # +49 (0) 211 - 25 09 - 461  
Information Schmincke-laboratory: mo.-th. 8.00-16.30, fr. 8.00-13.30  
tel.: +49 (0) 211 - 2509 - 474  
eMail: labor@schmincke.de  
Emergency Information  
Emergencycall Berlin: +49 (0) 30 - 1 92 40

## 2. Composition/information on ingredients

Chemical characterization (substance) pigments water gum arabic solution  
Dangerous constituents  
Chloracetamide: < 0,1 % CAS-Number: 79-07-2  
R phrase(s): 25 - 43 - 62  
Additional information further information: see appendix

## 3. Hazard identification

Classification  
Nature of Hazard The product does not require a hazard warning label in accordance with EC directives/ GefStoffV (German regulations on dangerous substances).

## 4. First aid measures

General information In case of problems seek medical advice and show the package or label

## 5. Fire fighting measures

Suitable extinguishing media Product itself is non-combustible; adapt fire extinguishing measures to surrounding areas. Compatible with all usual extinguishing media.

## 6. Accidental release measures

Additional information When picked up, treat material as prescribed under heading "Disposal".

## 7. Handling and storage

article **series 16 - AKADEMIE Aquarell**  
**16000000** version: 1

Date: 18.10.2006  
Page 2 of 3

Particular use(s)

Particular use(s) No special measures necessary if stored and handled as prescribed.

## **8. Exposure controls / personal protection**

Limitation and surveillance of the exposure at the workplace.

General protection and hygiene measures No special measures necessary if used correctly.

## **9. Physical and chemical properties**

Appearance

Form solid  
Colour pigmented  
Odour characteristic

Safety relevant data

Density 1,2 - 2,3 g/ml

## **10. Stability and reactivity**

## **11. Toxicological information**

General remarks

General remarks By appropriate use of the product no health damage is known.

## **12. Ecological information**

Additional ecological information

General remarks Moderately/partially biodegradable

## **13. Disposal considerations**

Product

Recommendation 080112 waste paint and varnish other than those mentioned in 080111

## **14. transport information**

Additional information

Additional information The product does not constitute a hazardous substance in national / international road, rail, sea and air transport.

article **series 16 - AKADEMIE Aquarell**  
**16000000** version: 1

Date: 18.10.2006  
Page 3 of 3

## 15. Regulatory information

### Classification

Nature of Hazard

The product does not require a hazard warning label in accordance with EC directives/ GefStoffV (German regulations on dangerous substances).

## 16. Other information

R phrase(s)

R25 Toxic if swallowed.  
R43 May cause sensitisation by skin contact.  
R62 Possible risk of impaired fertility.

Further remarks

This information is based on our current state of knowledge and describes the security standards applicable to our product for the purpose provided. The information provided here does not constitute a legally binding warranty of specific characteristics or of suitability for a specific application use of the product is thus to be adapted to the user's special conditions and checked by preliminary tests. We are thus unable to guarantee product characteristics or accept an liability for damage arising in connection with the use of our products.

**Appendix for material safety data sheet no.: 16 000 000**

- AKADEMIE® Aquarell fine artists' water-colours -

art. no.	art. name	C.I.	CAS-no.
16 111	opaque white.....	PW 6	Titanium dioxide ..... 13463-67-7
16 222	light lemon yellow .....	PY 3	Monoazo..... 6486-23-3
16 224	cadmium yellow tone.....	PY 151	Benzimidazolone ..... 61036-28-0
16 225	Indian yellow .....	PY 110; PY 154	Isoindolinone; Benzimidazolone ..... 5590-18-1; 68134-22-5
16 226	Naples yellow.....	PW 6; PY 42; PR 242	Titanium dioxide; Hydrated iron oxide; ..... 13463-67-7; 20344-49-4; Disazocondensation ..... 118440-67-8
16 330	orange .....	PO 71	Diketo-pyrrolo-pyrrol ..... -
16 332	cadmium red tone .....	PR 255	Diketo-pyrrolo-pyrrol ..... 120500-90-5
16 333	carmine.....	PV 19	Quinacridone ..... 1047-16-1
16 334	madder lake.....	PR 83:1; PR 177	Anthrachinone, Al; Anthanthrone ..... 72-78-0; 4051-63-2
16 440	violet.....	PV 16	Manganese-ammonium phosphate..... 10101-66-3
16 442	indigo.....	PB 15:1; PB 66	Phthalocyanine (Cu); Indigo, synthetic..... 147-14-8; 482-89-3
16 443	ultramarine .....	PB 29	Sodium-aluminium-silicate..... 57455-37-5
16 445	Prussian blue.....	PB 27	Iron-cyan-complex ..... 14038-43-8; 25869-98-1
16 446	turquoise blue.....	PB 16	Phthalocyanine ..... 574-93-6
16 551	brilliant green.....	PG 7	Phthalocyanine (Cu, Cl)..... 1328-53-6
16 552	may green .....	PY 151; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl)..... 61036-28-0; 1328-53-6
16 553	permanent green.....	PO 62; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl)..... 75601-68-2; 1328-53-6
16 554	olive green yellowish.....	PO 62; PG 36	Benzimidazolone; ..... 75601-68-2; Phthalocyaninecomplex (Cu, Cl, Br)..... 14302-13-7
16 660	yellow ochre .....	PY 42	Hydrated iron oxide ..... 20344-49-4
16 664	burnt umber.....	PBr 7	Earth pigment ..... -
16 665	sepia.....	PB 15:1; PBr 7; PBk 9	Phthalocyanine (Cu); Earth pigment; ..... 147-14-8; -; Carbonized bones of animals ..... 8021-99-6
14 666	English red.....	PR 101	Iron oxide..... 1309-37-1
14 770	Payne's grey.....	PR 101; PB 29; PBk 7	Iron oxide; Sodium-aluminium-silicate; ..... 1309-37-1; 57455-37-5; Lamp black ..... 1333-86-4
14 782	black .....	PBk 9	Carbonized bones of animals..... 8021-99-6

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name series 16 - AKADEMIE Aquarell

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

General use  
fine artists' water colours for artistic painting techniques

Uses advised against

#### 1.3 Details of the supplier of the safety data sheet

H. Schmincke & Co. GmbH & Co. KG  
Otto-Hahn-Str. 2  
40699 Erkrath  
www.schmincke.de

tel.: +49 (0) 211 / 25 09 - 0  
fax: +49 (0) 211 / 25 09 - 461

INFORMING DEPARTMENT:  
Schmincke-lab: mo.-th. 8.00-16.00; fr. 8.00-13.30  
tel.: +49 (0) 211 / 2509 - 474  
eMail: labor@schmincke.de

#### 1.4 Emergency telephone number

Emergency  
Information  
Phone #

Emergencycall Berlin  
(24h - counseling in german and english)  
+49 (0) 30 / 30 68  
67 90

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Classification according to Directive 67/548/EEC or 1999/45/EC

no hazard labelling required

#### 2.2 Label elements

Labelling (CLP)

signal word

Hazard Statements

Safety precautions

Labelling (67/548/EEC or 1999/45)

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### Nature of Hazard

no hazard labelling required

### R phrase(s)

### S phrase(s)

### 2.3 Other hazards

## SECTION 3: Composition/ information on ingredients

### 3.1 Substances

#### chemical characterization

pigments Water gum arabic solution

CAS-Number  
EINECS / ELINCS / NLP  
EU-number  
Customs tariff number  
REACH registration No.  
RTECS-Number

### 3.2 Mixtures

#### Additional information

further information: see appendix

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information

No special measures are required. If you feel unwell, seek medical advice.

#### After inhalation

#### In case of skin contact

#### After eye contact

#### After swallowing

### 4.2 Most important symptoms and effects, both acute and delayed

### 4.3 Indication of any immediate medical attention and special treatment needed

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Product is non-combustible. Extinguishing materials should therefore be selected according to surroundings.

#### Extinguishing media which must not be used for safety reasons

### 5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated: Carbon monoxide and carbon dioxide

### 5.3 Advice for firefighters

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Special protective equipment for firefighters  
Additional information

### SECTION 6: Accidental release measures

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin, eyes, and clothing.

#### **6.2 environmental precautions**

Discharge into the environment must be avoided.

#### **6.3 Methods and material for containment and cleaning up**

Take up mechanically. Wash spill area with plenty of water.

#### **6.4 Reference to other sections**

Dispose of waste according to applicable legislation. refer to chapter 13

### SECTION 7: Handling and storage

#### **7.1 Precautions for safe handling**

##### **Advices on safe handling**

Handle in accordance with good industrial hygiene and safety practice.

##### **Precautions against fire and explosion**

#### **7.2 Conditions for safe storage, including any incompatibilities**

##### **Requirements for storerooms and containers**

Keep container tightly closed.

##### **hints on joint storage**

##### **Storage class**

##### **Further details**

storage temperature: 5 - 40 °C, Protect from moisture contamination.

#### **7.3 Specific end use(s)**

No special measures necessary if stored and handled as prescribed.

### SECTION 8: Exposure controls/personal protection

#### **8.2 Exposure controls**

##### **Occupational exposure controls**

##### **Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.

##### **Hand protection**

Protect skin by using skin protective cream.

##### **eye protection**

No special measures are required.

##### **Body protection**

No special handling advices are necessary.

##### **General protection and hygiene measures**

Handle in accordance with good industrial hygiene and safety practice.

#### **8.1 Control parameters**

### SECTION 9: Physical and chemical properties

#### **9.1 information on basic physical and chemical properties**

##### **Physical state**

solid

##### **Colour**

pigmented



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Odour odourless

### Important health, safety and environmental information

boiling temperature / boiling range

melting point / melting range

Flash point / flash point range

flammability

ignition temperature

Autoflammability

explosion limits

Refraction index

Vapour pressure

density 1,1 -

1,6 g/ml

pH value 6 - 7

Partition coefficient

n-octanol / water

Explosive properties

Viscosity

Viscosity dynamic of  
Viscosity kinematic of

Viscosity dynamic up to  
Viscosity kinematic up to

### 9.2 Other information

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

### 10.2 Chemical stability

### 10.3 Possibility of hazardous reactions

### 10.4 Conditions to avoid

frost and heat

### 10.5 Incompatible materials

### 10.6 Hazardous decomposition products

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Acute toxicity

After inhalation

No data available

After swallowing

No data available

In case of skin contact

No data available

After eye contact

No data available

### Practical experience

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### General remarks

Acute toxicity, irritation of the skin and mucous mebrane, and mutagenic potential of the preparation were assessed by the manufacturer on the basis of the data available on the main components.

## SECTION 12: Ecological information

### 12.1 Toxicity

Aquatic toxicity  
Water Hazard Class  
General information

### 12.2 Persistence and degradability

Further details  
Oxygen demand  
Product is partially biodegradable.

### 12.3 Bioaccumulative potential

Bioconcentration factor (BCF)  
Partition coefficient n-octanol /water

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

No data available

### 12.6 Other adverse effects

General information

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste key number  
Recommendation  
080112 waste paint and varnish other than those mentioned in 080111

#### Contaminated packaging

Waste key number  
Recommendation

#### Additional information

## SECTION 14: Transport information

### 14.1 UN number

### 14.2 UN proper shipping name

ADR, ADN  
IMDG, IATA  
No dangerous good in sense of these transport regulations.

### 14.3 Transport hazard class(es)

ADR, ADN  
IMDG  
IATA

### 14.4 Packing group

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### 14.5 Environmental hazards

Subrisk

### 14.6 Special precautions for user

#### Land transport

Code: ADR/RID  
Hazard label ADR  
Limited quantities  
Contaminated packaging: Instructions  
Contaminated packaging: Special provisions  
Special provisions for packing together  
Portable tanks: Instructions  
Portable tanks: Special provisions  
Tank coding  
tunnel restriction  
Remarks  
EQ

Hazard label  
Limited quantities  
Transport permitted  
Equipment necessary  
ventilation  
Remarks  
EQ

#### Sea transport

EmS  
Special provisions  
Limited quantities  
Contaminated packaging: Instructions  
Contaminated packaging: Special provisions  
IBC: Instructions  
IBC: Provisions  
Tank instructions IMO  
Tank instructions UN  
Tank instructions Special provisions  
Stowage and segregation  
Properties and observations  
Remarks  
EQ

#### Air transport

Hazard  
Passenger  
Passenger LQ  
Cargo  
ERG  
Remarks  
EQ

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

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No data available

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

##### National regulations

###### Europe

Contents of VOC [%] 0 %  
Contents of VOC  
[g/L]  
Further regulations, limitations and legal requirements

###### Germany

Storage class  
Water Hazard Class  
Incident regulation  
Informations on working limitations  
Further regulations, limitations and legal requirements

###### Denmark

Further regulations, limitations and legal requirements

Further regulations, limitations and legal requirements

###### Great Britain

Further regulations, limitations and legal requirements

###### Switzerland

Contents of VOC [%]  
Further regulations, limitations and legal requirements

###### USA

Further regulations, limitations and legal requirements  
Federal Regulations  
State Regulations

###### Japan

Further regulations, limitations and legal requirements

###### Canada

Further regulations, limitations and legal requirements

#### 15.2 Chemical Safety Assessment

### SECTION 16: Other information

##### Further remarks

R phrase(s)

Hazard Statements  
(CLP)

Further remarks

This information is based on our current state of knowledge and describes the security standards applicable to our product for the purpose provided. The information provided here does not constitute a legally binding warranty of specific characteristics or of suitability

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for a specific application use of the product is thus to be adapted to the user's special conditions and checked by preliminary tests. We are thus unable to guarantee product characteristics or accept an liability for damage arising in connection with the use of our products.

### Literature

### Reason of change

### Additional information

## Appendix for material safety data sheet no.: 16 000 000

### AKADEMIE® Aquarell fine artists' water colours

<b>16 111</b>	opaque white	PW 6	Titanium dioxide	13463-67-7
<b>16 222</b>	light lemon yellow	PY 3	Monoazo	6486-23-3
<b>16 224</b>	cadmium yellow hue	PY 151	Benzimidazolone	61036-28-0
<b>16 225</b>	Indian yellow	PY 110; PY 154	Isoindolinone; Benzimidazolone	5590-18-1; 68134-22-5
<b>16 226</b>	Naples yellow	PW 6; PR 242; PY 42	Titanium dioxide; Disazocondensation; Hydrated iron oxide	13463-67-7; 118440-67-8; 20344-49-4
<b>16 330</b>	orange	PO 71	Diketo-pyrrolo-pyrrol	71832-85-4
<b>16 332</b>	cadmium red hue	PR 255	Diketo-pyrrolo-pyrrol	120500-90-5
<b>16 333</b>	carmin	PV 19	Quinacridone	1047-16-1
* <b>16 336</b>	magenta	PV 42	Quinacridone	-
<b>16 440</b>	violet	PV 16	Manganese-ammonium pyrophosphate	10101-66-3
<b>16 442</b>	indigo	PB 15:1; PB 66	Phthalocyanine (Cu); Indigo, synthetic	147-14-8; 482-89-3
<b>16 443</b>	ultramarine	PB 29	Sodium aluminum silicate	57455-37-5
<b>16 445</b>	Prussian blue	PB 27	Iron-cyan-complex	14038-43-8; 25869-98-1
* <b>16 448</b>	cyan	PB 15:3	Phthalocyanine (Cu)	147-14-8
<b>16 551</b>	brilliant green	PG 7	Phthalocyanine (Cu, Cl)	1328-53-6
<b>16 552</b>	may green	PY 151; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl)	61036-28-0; 1328-53-6
<b>16 553</b>	permanent green	PO 62; PG 7	Benzimidazolone; Phthalocyanine (Cu, Cl)	75601-68-2; 1328-53-6
<b>16 554</b>	olive green yellowish	PO 62; PG 36	Benzimidazolone; Phthalocyanine complex (Cu, Cl, Br)	75601-68-2; 14302-13-7
<b>16 660</b>	yellow ochre	PY 42	Hydrated iron oxide	20344-49-4
<b>16 664</b>	burnt umber	PBr 7	Earth pigment	-
* <b>16 665</b>	sepia	PB 15:1; PBk 6; PBk 7	Phthalocyanine (Cu); Lamp black; Lamp black	147-14-8; 1333-86-4; 1333-86-4
<b>16 666</b>	English red	PR 101	Iron oxide	1309-37-1
<b>16 770</b>	Payne's grey	PR 101; PB 29	Iron oxide; Sodium aluminum silicate	1309-37-1; 57455-37-5
* <b>16 782</b>	black	PBk 6	Lamp black	1333-86-4