
**Pigments, dyestuffs and extenders —
Terminology —**

**Part 1:
General terms**

*Pigments, colorants et matières de charge — Terminologie —
Partie 1: Termes généraux*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 256, *Pigments, dyestuffs and extenders*.

ISO 18451 consists of the following parts, under the general title *Pigments, dyestuffs and extenders — Terminology*:

- *Part 1: General terms*
- *Part 2: Classification of colouring materials according to colouristic and chemical aspects*

Pigments, dyestuffs and extenders — Terminology —

Part 1: General terms

1 Scope

This part of ISO 18451 defines terms that are used in the field of pigments, dyestuffs and extenders.

For some terms, reference is made to ISO 4618 in which also terms and definitions for colourants are given, relating to their use in coating materials.

In addition to terms in English and French (two of the three official ISO languages), this part of ISO 18451 gives the equivalent terms in German; these are published under the responsibility of the member body for Germany (DIN). However, only the terms and definitions given in the official languages can be considered as ISO terms and definitions.

NOTE Those terms that are defined elsewhere in this part of ISO 18451 are shown in *italics*.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

abrasiveness

property of *pigments* (2.95) or *extenders* (2.34) and their preparations to cause wear at the used apparatus by mechanical action

2.2

aluminium pigment

pigment (2.95) consisting essentially of finely divided pure aluminium Al 99,5

Note 1 to entry: The aluminium particles have lamellar form.

2.3

apparent density after tamping

ratio of mass to volume of a powder after compressing (e.g. by tamping or vibration) under specified conditions

2.4

barite

naturally occurring barium sulfate, BaSO₄

2.5

binder demand

amount of a binder or binder solution that is required to obtain, under specified dispersion conditions, a mass of defined rheology

2.6

bismuth vanadate pigment

yellow inorganic *pigment* (2.95) consisting of bismuth vanadate with or without isomorphous inclusion of bismuth molybdate

2.7

blanc fixe

barium sulphate

synthetic barium sulphate, produced by a precipitation process

Note 1 to entry: Naturally occurring barium sulfate is called *barite* (2.4).

2.8

bleeding

migration (2.76) of a *colourant* (2.19) from a material into another material being in contact with it

2.9

blooming

migration (2.76) of a *colourant* (2.19) to the surface of the coloured material

2.10

cadmium pigment

inorganic coloured pigment consisting essentially of cadmium zinc sulphide (yellow pigments) or of mixed crystals of cadmium sulphide and cadmium selenide (red pigments)

2.11

calcined clay

calcined aluminium silicate

aluminium silicate ($\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$), lamellar, mainly amorphous in structure as determined by X-ray diffraction, produced from natural clay by thermal dehydration, consisting partly of crystalline mullite ($3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$)

2.12 Calcite

2.12.1

calcite

crystalline calcium carbonate

<mineralogy> calcium carbonate of trigonal crystal structure

2.12.2

calcite

crystalline calcium carbonate

<pigments> designation for *extenders* (2.34) produced from calcareous spar of marble or for precipitated calcitic calcium carbonates

2.13

carbon black

pigment (2.95) synthetically produced by thermally oxidative cracking of aromatic oils and gases

Note 1 to entry: It is distinguished between carbon black and industrial carbon black.

2.14

ceramic decoration colour

preparation consisting of coloured or colourless glass powder and inorganic *pigments* (2.95) for coating of ceramics or glass by melting at temperatures above 450 °C

2.15

chalking

appearance of a loosely adherent fine *powder* (2.97) on the surface of a film or pigmented plastic arising from the degradation of the binder

2.16

chroma

difference of a *colour* (2.20) from an achromatic colour of the same lightness

2.17**chromium oxide pigment**

inorganic coloured pigment consisting essentially of chromium (III) oxide (Cr_2O_3) in the form of a dry powder

2.18**CIC-pigment****coloured inorganic complex pigment**

coloured pigment, rutile or spinell based, produced by replacement of titanium in the rutile lattice or aluminium or magnesium in the spinel lattice through other atoms

Note 1 to entry: Such pigments are incorrectly named mixed phase pigments.

2.19**colourant**

generic term for all colouring substances

Note 1 to entry: Colourants comprise *pigments* (2.95) which are insoluble in the medium as well as *dyestuffs* (2.30) which are soluble in the medium.

Note 2 to entry: A pigment may contain the pure chemical substance and/or a surface treatment and/or additives.

Note 3 to entry: A colourant may also contain traces of impurities, which may originate from raw materials and/or the production processes.

Note 4 to entry: In order to improve application properties, a colourant may contain additives.

2.20**colour**

sensation resulting from the visual perception of electromagnetic radiation of a given spectral composition

Note 1 to entry: The use of the German word "Farbe" alone, i.e. not in combinations of words, for coating materials is to be rejected.

Note 2 to entry: A colour is characterized by *hue* (2.49), *saturation* (2.105) or *chroma* (2.16), and *lightness* (2.65).

Note 3 to entry: It is distinguished between chromatic and achromatic colours.

2.21**colour difference**

differences in *lightness* (2.65), *chroma* (2.16) and *hue* (2.49)

Note 1 to entry: Colour differences, for example, occur between different specimens, between the same specimens but of different history and within a specimen inhomogeneous with regard to colour.

2.22**colour strength equivalent**

reciprocal of the *relative tinting strength* (2.104) of a *pigment* (2.95)

Note 1 to entry: It indicates how many parts of a sample are colouristically equivalent to 100 parts of a reference sample. In other words, the colour strength equivalent of a weaker *pigment* (2.95) is greater than 100.

2.23 Compound**2.23.1****compound**

<pigments> mixture of *pigments* (2.95) and/or *extenders* (2.34), ready for use

2.23.2**compound**

<plastics> moulding material, ready for use, containing all the *colourants* (2.19), *extenders* (2.34) and additives

2.24

core pigment

pigment (2.95) the mostly inorganic core of which is enveloped with one or more (mostly inorganic) substances so that its optical properties are hardly effected by the material of the shell but its application properties are improved

2.25

corrosion-inhibiting pigment

anticorrosive pigment

pigment (2.95) that inhibits or avoids, in priming coats on metals, the corrosion of the metal surface, normally by chemical or physicochemical action

2.26

depth of shade

measure for the intensity of a colour perception that increases with increasing *chroma* (2.16) and decreases with increasing *lightness* (2.65)

Note 1 to entry: Colourations having the same depth of shade appear to be prepared using the same concentrations of colourants having the same *tinging strength* (2.121).

2.27

dispersibility

property of a *pigment* (2.95) or *extender* (2.34) characterized by its ability to be wetted, separated and distributed in a medium

Note 1 to entry: The dispersibility depends on its wettability and on the number and strength of the adhering areas between the components of the *agglomerates* (2.93.3).

Note 2 to entry: As a measure of the dispersibility under specified dispersion conditions, e.g. the speed of the *tinging strength* (2.121) development and/or the decrease of the *fineness of grind* (2.37) can be taken.

2.28

dispersing

separation of the *agglomerates* (2.93.3) of the *pigment* (2.95) or *extender* (2.34) powder into smaller particles [*agglomerates* (2.93.3), *aggregates* (2.93.2) and *primary particles* (2.93.1)] and their wetting by the medium at the same time

Note 1 to entry: Occasionally, separation of *aggregates* (2.93.2) and breaking, for example, of needle-shaped *primary particles* (2.93.1) also takes place. Furthermore, a statistically uniform distribution of the *particles* (2.93) formed in this way to all volume elements of the medium is a part of the dispersing process.

2.29

dolomite

natural calcium magnesium carbonate containing between 1,18 and 1,23 parts by mass of CaCO_3 to 1 part by mass of MgCO_3

2.30

dyestuff

colourant (2.19), soluble in the application medium

Note 1 to entry: *Colourants* (2.19) for glass, ceramics and vitreous enamel that are dissolved in the glass phase are also called "Lösungsfarben" in German language. In these cases, oxides of transition elements are used.

Note 2 to entry: In German usage, in the pharmaceutical and foodstuffs fields, the term "Farbstoff" is used as a synonym for "colourant".

2.31

earth pigment

pigment (2.95) produced from earths, e.g. by classification, if necessary with additional thermal treatment

2.32**effect pigment**

platelet-like *pigment* (2.95) that confers not only *colour* (2.20) but additional properties such as iridescence (interference at thin layers), angle dependency of colour (colour travel, colour flop, light-dark flop), or texture

Note 1 to entry: See also *metal effect pigment* (2.72), *nacreous pigment* (2.78), *interference pigment* (2.51).

2.33**electro chromic pigment**

pigment (2.95) which changes its *colour* (2.20) depending on the electric current or the voltage

2.34**extender**

substance in granular or powder form, insoluble in the medium (e.g. coating material) and used to modify or influence certain physical properties

Note 1 to entry: The German terms “Extender”, “Extenderpigment”, “Pigmentextender” or “Verschnittmittel” should be avoided.

Note 2 to entry: Whether a given substance is to be considered as *pigment* (2.95) or extender depends on its application.

2.35**fastness**

stability of the *colour* (2.20)

Note 1 to entry: For characterization of the respective stress, the term fastness, e.g. of a coating, is used in word combinations such as light fastness, acid fastness, solvent fastness. The acid fastness, for example, of a coating is the stability of the *colour* (2.20) of the coating under the influence of acids.

2.36**final level of dispersion**

level of dispersion (2.62) when it has become constant under the defined conditions

Note 1 to entry: The final level of dispersion of a *pigment* (2.95) depends on the binder system in which it is dispersed, on the dispersion process and on the composition of the milling base.

2.37**fineness of grind**

measure for the largest solid particles in a liquid matrix

Note 1 to entry: The term fineness of grind is not to be confused with the term grain hardness.

2.38**floating**

separation of one or more *pigments* (2.95) from a coloured coating material, causing streaks or areas on the surface of the coating material

2.39**flooding**

separation of the *pigments* (2.95) in a liquid coating giving rise to a *colour* (2.20) which, although uniform over the whole surface, is markedly different from that of the freshly applied wet film before drying/hardening

Note 1 to entry: See *leafing* (2.61).

2.40**food dyestuff**

substance that gives *colour* (2.20) to a foodstuff or restores the colour of a foodstuff

2.41

full shade

colour (2.20) of a *mass tone system* (2.70) in a non-hiding layer

2.42

functional extender

extender (2.34), when applied in the application medium, processes or enhances specific functions due to its physical or chemical properties

Note 1 to entry: Examples for physical properties are: elasticity, durability, hardness, anti-fatigue.

2.43

functional pigment

pigment (2.95), when applied in the application medium, possesses specific functions due to its unique physical or chemical properties rather than only colouring

Note 1 to entry: Examples for specific functions are: UV absorption, electric properties such as conductivity, anti-corrosion properties, photocatalytical properties, function as barrier pigment, infrared absorption or infrared reflection.

2.44

goniochromatic pigment

effect pigment (2.32) showing an angle-depending colour change between different interference colours

2.45

heat stability

resistance to a heat treatment of the *colour* (2.20) of the test specimens under specified conditions of test

2.46

heavy-metal containing pigment

pigment (2.95) containing heavy metal(s) as constituent

Note 1 to entry: Heavy metals are all metals having a density greater than 4,5 g/cm³.

2.47

hiding power

ability of material, containing *colourants* (2.19), to obliterate the *colour* (2.20) or *colour differences* (2.21) of the *substrate* (2.114)

Note 1 to entry: The use of the German expressions "Deckkraft" und "Deckfähigkeit" should be avoided.

[SOURCE: ISO 4618:2014, 2.138, modified — Note 2 deleted]

2.48

hiding power value

numerical value of the *hiding power* (2.47), as determined using a defined method

2.49

hue

type of *chroma* (2.16) of a *colour* (2.20)

Note 1 to entry: The hue is designated in daily life by words such as red, yellow, green, blue, violet, etc.

2.50

inclusion pigment

pigment (2.95), the colouring component of which is included in a coat of high thermal and chemical resistance

Note 1 to entry: The coat renders it possible that the colouring component can be used at much higher temperatures. Furthermore, the resistance, e.g. to acids and alkalies, will be improved essentially.

2.51**interference pigment****pearlescent pigment**

effect pigment (2.32), the effect of which is based completely or predominantly on the phenomenon of interference, e.g. *pearlescent pigment*, fire-coloured metal bronze

Note 1 to entry: Interference pigments can be coated with one or more layers.

2.52**intrinsic hardness**

hardness of the primary particle of a *pigment* (2.95) or *extender* (2.34) as a property of the material

Note 1 to entry: Only indirect conclusions to the practically effective intrinsic hardness can be made, for example, from abrasion tests.

Note 2 to entry: In the case of inorganic pigments, the Mohs hardness is often given as a reference value for the intrinsic hardness.

2.53**iron blue pigment**

pigment (2.95) formed by the reaction of iron salts with cyanoferrate(II) or cyanoferrate(III) ions and followed, if necessary, by treatment with oxidizing agents

2.54**iron oxide pigment**

pigment (2.95) consisting of natural or synthetic iron oxides, if necessary with additions of extenders

2.55**kaolinite**

main constituent of *natural clay* (2.88)

2.56**lake**

pigment (2.95) produced by precipitation of a dissolved organic *dyestuff* (2.30) with a precipitating agent

Note 1 to entry: Lake is not "Lack" as commonly used in German language but a *colourant* (2.19). In Austrian and Swiss usage, the German expression "Farblack" is not usual.

2.57 Lake pigment**2.57.1****lake pigment**

<type 1> *pigment* (2.95) produced by precipitation of a sulphone or carbonic acid-containing azo dyestuff with one or more suitable metal salts

Note 1 to entry: Lake pigments predominantly contain metal cation magnesium, calcium, strontium, barium, aluminium or manganese.

2.57.2**lake pigment**

<type 2> *pigment* (2.95) produced by precipitation of a basic *dyestuff* (2.30) with heteropoly acids

2.58**lead chromate pigment**

yellow, orange or red *pigment* (2.95) consisting of lead chromate with or without lead sulphate and/or lead molybdate

Note 1 to entry: Designations in common use for lead chromate pigments are, for example, chrome yellow, molybdate orange and molybdate red.

2.59

lead chrome green pigment

inorganic *pigment* (2.95) produced from *lead chromate pigments* (2.58) and *iron blue pigments* (2.53) without additions of *extenders* (2.34) and other *colourants* (2.19)

2.60

lead chrome/phthalocyanine pigment

pigment (2.95) produced from *lead chromate pigments* (2.58) and phthalocyanine blue pigments without additions of other *colourants* (2.19)

2.61

leafing

flooding (2.39) of specially treated *effect pigments* (2.32) to the surface of a coating material shortly after application

2.62

level of dispersion

extent to which *pigment* (2.95) particles have been separated, distributed and stabilized by milling in a binder system under defined conditions

2.63

light fastness

resistance to colour changes due to exposure to light, without direct atmospheric effects (therefore, not "weather resistance")

Note 1 to entry: Light fastness commonly is evaluated by visual assessment using standard reference colour standards (or by instrumental assessment).

2.64

lightening power

ability of a *pigment* (2.95) to increase the *lightness* (2.65) of a coloured, grey or black medium

2.65

lightness

intensity of a light perception as it is inseparable connected with each colour perception

Note 1 to entry: Definition aligned to CIELAB.

2.66

lithopone™

white pigment obtained by combined precipitation of zinc sulphide (ZnS) and barium sulphate (BaSO₄)

2.67

luminance factor

measure of the *lightness* (2.65) of *surface colours* (2.115)

Note 1 to entry: Generally, this luminance factor is 100 times the reflectance factor R_v . Depending on the object and the measuring geometry 100 times the reflectance, ρ , or the transmittance factor, T , can be taken as the luminance factor. The luminance factor is connected with the tristimulus values by the luminance coefficients.

2.68

luminous pigment

pigment (2.95) that absorbs radiation and emits light (of higher wavelength)

Note 1 to entry: This effect is called luminescence.

Note 2 to entry: The optical effect is based on its ability to absorb radiation and to emit light of higher wavelength with temporal delay (phosphorescence) or without temporal delay (fluorescence).

2.69

mass tone

colour (2.20) of a *mass tone system* (2.70) in optically infinite (hiding) layer

2.70**mass tone system**

pigmented system, containing one *pigment* (2.95) only

2.71**masterbatch**

preparation which, in a solid polymer carrier, contains substances [*colourants* (2.19), *extenders* (2.34), additives] in much higher concentration than in the moulded component or semi-finished product to be produced using this preparation

Note 1 to entry: The substances are present either completely dispersed or dissolved.

2.72**metal effect pigment**

platelet-like *pigment* (2.95) consisting of metal

Note 1 to entry: Metal effect pigments can be orientated in parallel and show then metallic gloss due to light reflection at the flakes.

2.73**metal pigment**

pigment (2.95) consisting of metals or metal alloys

EXAMPLE Zinc dust pigment.

2.74**mica**

alkali-containing hydrated aluminium silicates in lamellar form

EXAMPLE Muscovite, biotite and phlogopite.

Note 1 to entry: Not to be confused with *micaceous iron oxide* (2.75).

2.75**micaceous iron oxide**

refined mineral or synthetic product consisting essentially of iron (III) oxide (Fe_2O_3)

Note 1 to entry: Micaceous iron oxide has lamellar form and is grey in *colour* (2.20) with metallic gloss.

2.76**migration**

transfer of a *colourant* (2.19) from a medium coloured with it to the surface [*blooming* (2.9)] or into another medium

[SOURCE: *bleeding* (2.8)]

2.77**muscovite**

natural lamellar hydrated potassium aluminium silicate

Note 1 to entry: Muscovite can be used as raw material for *effect pigments* (2.32).

2.78**nacreous pigment**

gloss pigment consisting of transparent flakes with high refractive index

Note 1 to entry: Nacreous pigments can be orientated in parallel and show then nacreous lustre as characterized by multiple reflection. Nacreous pigments that also show interference colours are also called pearl pigment or *interference pigment* (2.51).

2.79

nanodispersion

material in which *nano-objects* (2.82) are dispersed in a continuous phase of a different composition

Note 1 to entry: Nanodispersions comprise *nanosuspensions* (2.86) and *nanoemulsions* (2.80).

Note 2 to entry: Gaseous matrices are excluded (solid and liquid drops in gases are “aerosols”).

[SOURCE: ISO 4618:2014, 2.165]

2.80

nanoemulsion

nanodispersion (2.79) with a liquid matrix and at least one or more liquid *nano-objects* (2.82)

[SOURCE: ISO 4618:2014, 2.166]

2.81

nanoextender

extender (2.34) made of *nano-objects* (2.82)

[SOURCE: ISO 4618:2014, 2.167]

2.82

nano-object

material with one, two or three external dimensions in the *nanoscale* (2.85)

Note 1 to entry: This is a generic term for all discrete objects in the *nanoscale* (2.85).

[SOURCE: ISO 4618:2014, 2.169]

2.83

nanopigment

pigment (2.95), made of *nano-objects* (2.82)

[SOURCE: ISO 4618:2014, 2.170]

2.84

nanopowder

particulate material only composed of *nano-objects* (2.82)

Note 1 to entry: Nanopowder may include *agglomerates* (2.93.3) and/or *aggregates* (2.93.2) in the *nanoscale* (2.85) (largest dimension ≤ 100 nm).

2.85

nanoscale

size range from approximately 1 nm to 100 nm

[SOURCE: ISO 4618:2014, 2.171]

2.86

nanosuspension

heterogeneous mixture of materials comprising a liquid and finely dispersed solid *nano-objects* (2.82)

Note 1 to entry: As examples, nanosuspension can apply to either suspensions of *nanopigments* (2.83) or *nanoextenders* (2.81) (minerals), or to polymeric nanosuspensions.

[SOURCE: ISO 4618:2014, 2.173]

2.87

natural calcium carbonate

calcium carbonate

calcium carbonate produced by beneficiation of geological deposits of chalk, calcareous spar or marble

2.88**natural clay**
clay**natural hydrated aluminium silicate**

natural occurring hydrated aluminium silicates with lamellar crystal structure, predominantly consisting of kaolinite of chemical composition $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ | $\text{Al}_4((\text{OH})_8/\text{Si}_4\text{O}_{10})$

Note 1 to entry: In common use, natural clay is also called china clay.

2.89**natural silica****natural ground quartz**

ground *quartz* ([2.100](#)) consisting of the low-temperature modification of quartz with a theoretical density 2,65 g/cm³

Note 1 to entry: Particularly fine ground natural quartz is called quartz powder.

2.90**near-infrared reflecting pigment****NIR reflecting pigment**

pigment scattering near-infrared radiation in the wavelength range above the visible range up to 2 500 nm

Note 1 to entry: This spectral range comprises the non-visible part of the solar radiation (except UV).

Note 2 to entry: The term “IR-reflective” is mistakable and should be avoided because it also includes the mid infrared or “thermal” infrared. Many technical pigments, which are designed to be solar reflective, reflect near infrared but absorb mid infrared. The absorption of mid infrared is important for the emission of heat resulting from the incomplete reflection of solar radiation in the near infrared.

2.91**non leafing**

enrichment of *effect pigments* ([2.32](#)) on the lower level of a freshly applied base coat

2.92**oil absorption value**

quantity of refined linseed oil that is absorbed under defined conditions by a sample of *pigment* ([2.95](#)) or *extender* ([2.34](#))

Note 1 to entry: The oil absorption value can be expressed either on a volume/mass basis or on a mass/mass basis.

2.93**particle**

distinguishable *pigment* ([2.95](#)) or *extender* ([2.34](#)) unit, which can have any structure

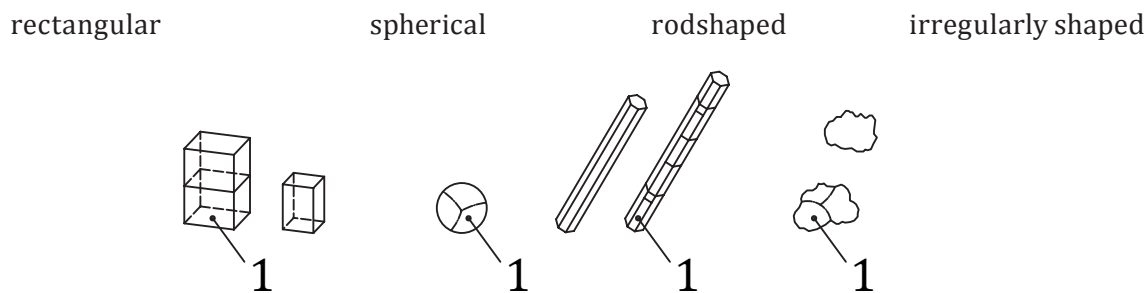
Note 1 to entry: Differentiations between the terms specified in [2.93.1](#) to [2.93.3](#) cannot always be formulated with a desired clarity in practice; often there are no clear distinctions. In [Figures 1](#) to [3](#), the terms specified under [2.93.1](#) to [2.93.3](#) are being defined with the example of rectangular, spherical, rod-shaped, and irregularly shaped particles in a highly schematized way.

2.93 Primary particles**2.93.1****primary particle****single particle**

by means of appropriate physical procedures (e.g. by means of light microscope, electron microscope) recognizably as individual detectable particle

Note 1 to entry: See [Figure 1](#).

Note 2 to entry: In special cases, a crystalline primary particle can be a single crystal or consist of several, with appropriate radiation (e.g. X-ray) definable, coherently scattered grid areas (crystallites).



Key

1 coherently scattered grid areas (crystallites)

Figure 1 — Primary particles

2.93.2

aggregate

unit grown together of facially contiguous *primary particles* (2.93.1), which surface is smaller than the sum of surfaces of the primary particles

Note 1 to entry: See [Figure 2](#).

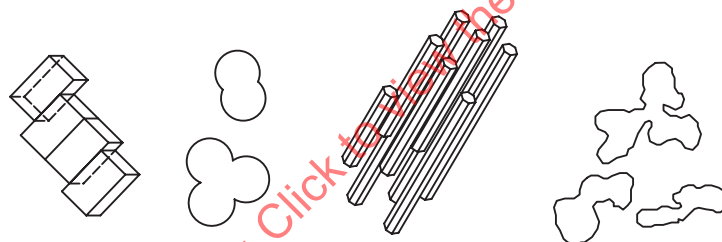


Figure 2 — Aggregates

2.93.3

agglomerate

unit not grown together of *primary particles* (2.93.1) and/or *aggregates* (2.93.2) contiguous e.g. on corners and edges, which total surface does not basically deviate from the sum of the single surfaces

Note 1 to entry: See [Figure 3](#).

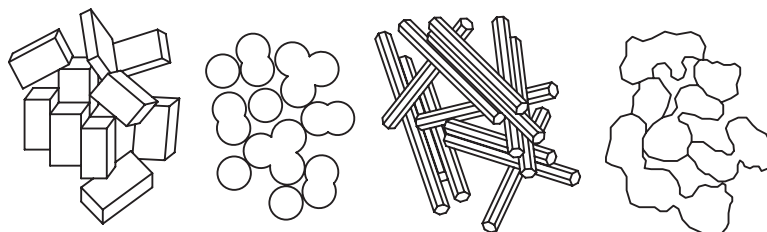


Figure 3 — Agglomerates

2.93.4

flocculate

in suspensions (e.g. in pigment binder systems) appearing *agglomerate* (2.93.3), which can be divided by means of low shear forces

2.94**particle size**

geometrically measured value for the identification of spatial expansion of a *particle* (2.93)

2.95**pigment**

colourant (2.19) consisting of *particles* (2.93), insoluble in the application medium (e.g. coating material or plastic)

Note 1 to entry: Pigments can be further described on the basis of their chemical composition, their optical or technical properties, e.g. inorganic pigment, organic pigment, coloured pigment, white pigment, *effect pigment* (2.32), *corrosion-inhibiting pigment* (2.25), magnetic pigment.

Note 2 to entry: Pigments for ceramics, glass and vitreous enamels are called stains.

Note 3 to entry: Whether a given substance is to be considered as pigment or *extender* (2.34) depends on its application.

2.96**pigment preparation**

preparation in which at least one *pigment* (2.95) is dispersed in a *carrier*

EXAMPLE Mill paste.

Note 1 to entry: The carrier envelopes the pigment completely and is compatible with the intended application medium. The pigment is present at a higher concentration as is the case at the later application.

Note 2 to entry: The preparation may contain e.g. dispersing agents, *extender* (2.34), binder, plastic, solvent, plasticizer or their mixtures.

2.97**powder**

quantity of single unbound *particles* (2.93)

Note 1 to entry: Unbound refers to non-covalent and/or non-ionic chemical bond.

2.98**precious-metal containing decoration colour**

preparation consisting of precious metals and organic and inorganic metal and precious metal compounds

Note 1 to entry: A precious-metal containing decoration colour contains no glass powder or only small amounts of it.

Note 2 to entry: In contrast to ceramic decoration colours, precious-metal decoration colours are always supplied together with the application additives added. All application additives evaporate or burn during melting and are no longer detectable in the coating.

2.99**precipitated calcium carbonate****calcium carbonicum praecipitatum****CCP**

synthetic calcium carbonate, consisting of trigonal crystals [like those of *calcite* (2.12.1, 2.12.2)] or rhombic bipyramidal crystals (like those of *aragonite*) or *vaterite* or amorphous particles or mixtures of the modifications listed before

2.100**quartz**

crystalline silica

Note 1 to entry: See also *natural ground quartz* (2.89).

2.101

reactive pigment

pigment (2.95) that in coatings reacts with the binder, the substrate or with agents penetrating from outside

EXAMPLE Corrosion protection pigment.

2.102

red lead

red orange-red *corrosion-inhibiting pigment* (2.25) consisting of lead orthoplumbate (Pb_3O_4) and lead (II) oxide (PbO)

2.103

relative scattering power

percentage ratio of the scattering index of the white pigment under test to the scattering index of a reference white pigment

2.104

relative tinting strength

relative colour strength

percentage ratio of the *tinting strength* (2.121) of the *colourant* (2.19) under test related to the tinting strength of a reference colourant

2.105

saturation

proportion of the *chroma* (2.16) to the *lightness* (2.65)

2.106

scattering power

ability of a pigmented medium to partly diffuse the incident light

2.107

shade

shade of a near white or achromatic specimen is the small chromatic amount by which the *colour* (2.20) of the specimen differs from ideal white or (ideal) achromatic

2.108

silica

silica obtained by wet-chemical and thermal or pyrogenic methods that is characterized as amorphous by X-ray or electron diffraction

2.109

specific surface area

absolute surface area of the sample divided by the sample mass

2.110

stability

ability of a material to resist against change of its properties when stressed or exposed

Note 1 to entry: Type and extent of the exposure as well as the change of properties are to be agreed.

2.111

stain

pigments for ceramics, glass and vitreous enamels

2.112

standard depth of shade

SD

depth of shade (2.26) level laid down by convention

2.113**strontium chromate pigment**

yellow inorganic *pigment* (2.95) produced from chromium(VI) and strontium compounds of the composition SrCrO_4 , without additions of *extenders* (2.34) and organic *colourants* (2.19)

Note 1 to entry: Strontium chromate pigment is an active *corrosion inhibiting pigment* (2.25).

2.114**substrate**

surface to which the coating material is applied or is to be applied

[SOURCE: ISO 4618:2014, 2.244]

2.115**surface colour**

colour (2.20) of a non-self-luminous object, i.e. of an object that requires an illuminating radiation to be seen

Note 1 to entry: The term should be used in this meaning only. Thus, surface colour is no *colourant* (2.19).

2.116**surface-coated pigment**

pigment (2.95), the *particles* (2.93) of which are coated with additional materials

EXAMPLE Silica and aluminium oxide hydrate on titanium dioxide pigment.

2.117**surface-treated pigment**

pigment (2.95), the surface of which has been treated chemically or physically

Note 1 to entry: The surface treatment influences the properties of the pigments

- during handling (e.g. with regard to dust formation) and/or
- during processing [e.g. *dispersibility* (2.27), storage stability] and/or
- the properties of the pigmented finished product [e.g. *stability* (2.110)].

2.118**talc**

natural lamellar hydrated magnesium silicate

2.119**tamping volume**

ratio of volume to mass of a powder after compressing (e.g. by tamping or vibration) under specified conditions

2.120**thermochromic pigment**

pigment (2.95) the *colour* (2.20) of which can change depending on the temperature

Note 1 to entry: The colour change may be reversible or irreversible.

2.121**tinting strength****colour strength**

measure of the ability of a *colourant* (2.19) to colour other materials because of its absorptive power

2.122**titanium dioxide pigment**

white, inorganic material in powder form having a high refractive index, that contains at least 80 % TiO_2

Note 1 to entry: This *pigment* (2.95) is available under the anatase (type A) and rutile (type R) mineral forms.

2.123

toner

printing ink for electrostatic and digital printing processes

Note 1 to entry: In American English, the term toner is also used for organic pigments.

2.124

transparency

characteristic of a pigmented or unpigmented system to scatter light as little as possible

Note 1 to entry: Accordingly, when a coating material is applied on a black substrate, the colour change of the black substrate shall be as little as possible. The higher the transparency of the pigmented or unpigmented system, the smaller the colour difference to the black substrate.

Note 2 to entry: The term “lasure” is used as a synonym for “transparency”.

2.125

tribopigment

pigment (2.95) which, due to its pronounced tribo-electric properties, controls the polarity, height and constancy of the charge of *toners* (2.123) and tribo-electric powder coating materials

2.126

ultramarine pigment

inorganic coloured pigment

Note 1 to entry: Chemically, it is sodium aluminium silicate with included chalcogens, e.g. sulfur, as chromophore.

2.127

wettability

property of *pigments* (2.95) and *extenders* (2.34) to form interfaces to liquid media

Note 1 to entry: In practice, the wettability is assessed by the speed with which the pigment powder (extender powder) is wetted by the liquid medium (see also *dispersing* (2.28)).

2.128

white lead

white inorganic *reactive pigment* (2.101) consisting of basic lead carbonate of the theoretical composition $2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$

2.129

whiting

natural calcium carbonate derived from chalk, a sedimentary rock of soft texture originating from the Cretaceous period

Note 1 to entry: It is characterized by microcrystalline calcitic crystals (up to 1 µm across). Chalk is mainly formed from shells and skeletons of small maritime organisms, e.g. foraminifera and coccoliths. Residual shell fragments are an essential characteristic of chalk. The term “whiting” shall not be used to describe forms of naturally occurring or precipitated calcium carbonate other than chalk.

2.130

zinc dust pigment

pigment (2.95) produced by distillation and subsequent condensation of the vapour phase or by spraying of liquid zinc, and containing at least 94 % of metallic zinc

2.131

zinc oxide pigment

zinc white

white inorganic *pigment* (2.95) that is produced by a pyrogenic procedure from metallic zinc or other zinc-containing raw materials

Note 1 to entry: Characteristically is the zinc oxide content of at least 98,5 %.

2.132**zinc phosphate pigment**

active *corrosion-inhibiting pigment* (2.25) consisting either predominantly of zinc phosphate dihydrate $[\text{Zn}_3(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}]$ or of a mixture of zinc phosphate dihydrate and zinc phosphate tetrahydrate $[\text{Zn}_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}]$ or predominantly of zinc phosphate tetrahydrate

2.133**zinc sulfide pigment**

white pigment that is produced by wet-chemical methods

Note 1 to entry: Characteristically is a zinc sulphide content of at least 98 %.

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Annex A (informative)

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