INTERNATIONAL STANDARD

ISO 13507

First edition
2012-11-15

Rubber compounds, raw rubbers and compounding materials — Short terms for properties reported in certificates of analysis

Mélanges de caoutchouc, caoutchoucs bruts et ingrédients de mélange — Noms courts pour les propriétés consignées dans les certificats d'analyse

Reference number
ISO 13507:2012(E)

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Published in Switzerland

Foreword

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ISO 13507 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

Rubber compounds, raw rubbers and compounding materials — Short terms for properties reported in certificates of analysis

1 Scope

This International Standard provides a list of short terms for analytical characteristics to be used in certificates of analysis for rubber compounds, raw rubbers and compounding materials.

2 Terms and definitions

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

2.1
common industrial term
one of the usual terms used to describe a characteristic

2.2
standard short term for certificate of analysis
term for a characteristic as written in the certificate of analysis

3 Short terms for analytical characteristics

Table 1 provides a list of the short-terms for analytical characteristics which shall be used in certificates of analysis for rubber compounds, raw rubbers and compounding materials.

Table 1 — Short terms for analytical characteristics

Common industrial term	Standard short term for certificates of analysis	Unit
A/O 2246[a]	A/O 2246	%
Acid number	Acid number	mg KOH/g
Active product content	Active product	% (by mass)
Additive content	Additive	% (by mass)
4 Aminodiphenylamine content	4ADPA content	% (by mass)
Aggregate size distribution (ASD): average aggregate diameter	D_w	nm
Aggregate size distribution (ASD): geometric mean aggregate mass	X_g	nm
Aggregate size distribution (ASD): most frequent diameter occurrence	D_{mode}	nm
Alkalinity (of latex)	Alkalinity (of latex)	% ammonia
Aluminium oxide content	Al_2O_3 content	% (by mass)

[a] Applicable to latex.

[b] 1 mPa·s = 1 cP.

[c] Hexadecyl-trimethyl-ammonium bromide (IUPAC name).

[d] 1 mN/m = 1 dyn/cm.

Table 1 *(continued)*

Common industrial term	Standard short term for certificates of analysis	Unit
Aluminium content	Al content	% (by mass)
Amine content	Amine content	% (by mass)
Ammonia content in latex	NH_3 content	% (by mass)
Amount of matter insoluble in	Matter insoluble in	% (by mass)
Amount of matter soluble in	Matter soluble in	% (by mass)
Aniline point	Aniline point	°C
Apparent Brookfield viscosity	Brookfield viscosity	mPa·s [b]
Aromatic carbon content	CA content	% (by mass)
Aromatic content	Aromatic content	% (by mass)
Asbestos content	Asbestos content	% (by mass)
Ash	Ash at .... °C	% (by mass)
Assay of	Assay of	% (by mass)
Bay region hydrogen content	H_{Bay}	%
Bound-styrene content	Bound-styrene content	% (by mass)
Boric acid content	Boric acid	%
Brunauer, Emmett and Teller (BET) nitrogen surface area (NSA)	NSA	m^2/g
Brunauer, Emmett and Teller (BET) statistical thickness surface area (STSA)	STSA	m^2/g
Bulk density	Bulk density	kg/l or g/ml or g/cm^3
Butylated hydroxyanisole [a]	BHA	%
Butylated hydroxytoluene [a]	BHT	%
Cadmium content	Cd content	% (by mass)
Calcium content	Ca content	% (by mass)
Calcium carbonate content	$CaCO_3$ content	% (by mass)
Carbon disulfide content	CS_2 content	% (by mass)
Carbonyl content	Carbonyl content	% (by mass)
Chlorine content	Cl content	% (by mass)
Chromium content	Cr content	% (by mass)
Cloud point	Cloud point	°C
Coagulum content in latex	Coagulum	% (by mass)
Cobalt content	Co content	% (by mass)
Combined-sulfur content	Combined-sulfur content	% (by mass)
Copper content	Cu content	mg/kg
CTAB adsorption number (of carbon black)	CTAB [c]	m^2/g
Cyclohexylamine content	Cyclohexylamine content	% (by mass)
Density at .... °C	Density at .... °C	kg/l or g/ml or g/cm^3

[a] Applicable to latex.

[b] 1 mPa·s = 1 cP.

[c] Hexadecyl-trimethyl-ammonium bromide (IUPAC name).

[d] 1 mN/m = 1 dyn/cm.

Table 1 *(continued)*

Common industrial term	Standard short term for certificates of analysis	Unit
Dicyclohexylamine content	Dicyclohexylamine content	% (by mass)
Diphenyl guanidine [a]	DPG	%
Diphenyl thiourea [a]	DPTU	%
Dipentamethylenethiuram tetrasulfide [a]	DPTT	%
Dirt content	Dirt content	% (by mass)
DMSO extract	DMSO extract	% (by mass)
Dropping point	Dropping point	—
Dry residue	Dry residue	% (by mass)
Dry-rubber content [a]	DRC	% (by mass)
Extractable-protein content	EP content	$\mu g/dm^2$
Flash point (closed cup)	Flash point (CC)	°C
Flash point (open cup)	Flash point (OC)	°C
Free-amine content	Free-amine content	% (by mass)
Free-formaldehyde content (in resin, for example)	Free-HCHO content	% (by mass)
Free-phenol content (in resin, for example)	Free-phenol content	% (by mass)
Free-sulfur content	Free-sulfur content	% (by mass)
Freezing point	Freezing point	°C
Gel content	Gel content	%
Glass-transition temperature	T_g	°C
Halogen content	Halogen content	% (by mass)
Heating loss at …. °C	Heating loss at …. °C	% (by mass)
Hydroxyl group content	Hydroxyl group	% (by mass)
Hydrated-formaldehyde content	HCHO content	% (by mass)
Ignition loss at …. °C	Ignition loss at …. °C	% (by mass)
Impurity content	Impurity	% (by mass)
Individual pellet strength	Pellet strength	cN
Insoluble-sulfur content	Insoluble-sulfur content	% (by mass)
Iodine adsorption number	Iodine number	mg/g
Iodine index	Iodine index	g/100 g
Iron content	Fe content	% (by mass)
Iron oxide content	Fe_2O_3 content	% (by mass)
Kinematic viscosity at …. °C	Kinematic viscosity at …. °C	mm^2/s
KOH number	KOH number	—
Lead content	Pb content	% (by mass)
Magnesium content	Mg content	% (by mass)
Magnesium oxide content	MgO content	% (by mass)

[a] Applicable to latex.

[b] 1 mPa·s = 1 cP.

[c] Hexadecyl-trimethyl-ammonium bromide (IUPAC name).

[d] 1 mN/m = 1 dyn/cm.

Table 1 *(continued)*

Common industrial term	Standard short term for certificates of analysis	Unit
Manganese content	Mn content	mg/kg
Mass-average molecular mass	M_w	g/mol
Mechanical-stability time for latex	MST	s
Melting point	Melting point	°C
Mercaptobenzothiazole (MBT) content [a]	MBT content	% (by mass)
Microstructure	Microstructure	%
Moisture content	Moisture content	% (by mass)
Molecular-mass distribution	MWD	g/mol
Mooney viscosity	ML(x+y) at …. °C	Mooney units
Naphthenic-carbon content	NC content	% (by mass)
N-nitrosodibenzylamine [a]	NDBzA content	µg/kg
N-nitrosodibutylamine [a]	NDBA content	µg/kg
N-nitrosodiethylamine [a]	NDEA content	µg/kg
N-nitrosodiisononylamine [a]	NDiNA content	µg/kg
N-nitrosodimethylamine [a]	NDMA content	µg/kg
N-nitrosodipropylamine [a]	NDPA content	µg/kg
N-nitrosoethylphenylamine [a]	NEPhA content	µg/kg
N-nitrosomethylethylamine [a]	NMEA content	µg/kg
N-nitrosomethylphenylamine [a]	NMPhA content	µg/kg
N-nitrosomorpholine [a]	N-MOR content	µg/kg
N-nitrosopiperidine [a]	N-PIP content	µg/kg
N-nitrosopyrrolidine [a]	N-PYR content	µg/kg
Nickel content	Ni content	% (by mass)
Nitrogen content	N content	% (by mass)
Number-average molecular mass	M_n	g/mol
Oil absorption number (of carbon black)	OAN	ml/100 g
Oil absorption number of compressed sample	COAN	ml/100 g
Organic-acid content	Organic-acid content	% (by mass)
Paraffinic-carbon content	PC content	% (by mass)
Particle size distribution (PSD): mean diameter	Mean diameter	µm
Particle size distribution: median diameter	Median diameter	µm
pH	pH	pH units
Phosphorus content	P content	% (by mass)
Phthalimide content	Phthalimide	% (by mass)
Plasticity number of unaged test pellet	P0	1/100 mm
Plasticity retention index	PRI	—

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[d] 1 mN/m = 1 dyn/cm.

Table 1 *(continued)*

Common industrial term	Standard short term for certificates of analysis	Unit
Polar content	Polar	% (by mass)
Polydispersity index	PDI	—
Pour density	Pour density	g/ml or g/cm^3 or kg/m^3
Pour point	Pour point	°C
Rapid plasticity number of test pellet after ageing at 140 °C for 30 min	P30	1/100 mm
Refractive index at …. °C	Refractive index at …. °C	—
Rubber hydrocarbon content	RHC	% (by mass)
Saponification number	Saponification number	mg KOH/g
Sieve residue at …. µm	Sieve residue at …. µm	% (by mass)
Silicon dioxide content	SiO_2	% (by mass)
Soap content	Soap content	% (by mass)
Sodium carbonate content	Na_2CO_3 content	% (by mass)
Softening point	Softening point	°C
Solidification point	Solidification point	°C
Soluble-sulfur content	Soluble-sulfur content	% (by mass)
Spectral transmittance of toluene extract	Toluene transmittance	% (by mass)
Surface tension	Surface tension	mN/m [d]
tert-Butylamine content	*tert*-Butylamine content	% (by mass)
Tetramethylthiuram disulfide	TMTD	mg/kg
Tinting strength (of carbon black)	Tinting strength	%
Total alkalinity (of latex)	Total alkalinity (of latex)	% ammonia
Total fatty acid content	Total fatty acid content	% (by mass)
Total protein content	Total protein content	µg/dm^2
Total solids content	TSC	% (by mass)
Total sulfur content	Total sulfur content	% (by mass)
Unsaponifiable content	Unsaponifiable content	% (by mass)
Unsaturation rate	Unsaturation rate	%
Vicat softening point	Vicat softening point	°C
Volatile fatty acid number (of latex)	VFA number	% (by mass)
Volatile-matter content at …. °C	Volatile-matter content at …. °C	% (by mass)
Wingstay L [a]	Wingstay L	%
Zinc content	Zn content	% (by mass)
Zinc dibenzyldithiocarbamate [a]	ZBED	%
Zinc dibutyldithiocarbamate [a]	ZDBC	%

[a] Applicable to latex.

[b] 1 mPa·s = 1 cP.

[c] Hexadecyl-trimethyl-ammonium bromide (IUPAC name).

[d] 1 mN/m = 1 dyn/cm.

Table 1 *(continued)*

Common industrial term	Standard short term for certificates of analysis	Unit
Zinc diethyldithiocarbamate [a]	ZDEC	%
Zinc dimethyldithiocarbamate [a]	ZDMC	%
Zinc mercaptobenzothiazole [a]	ZMBT	%
Zinc methyl mercaptobenzimidazole [a]	ZMMBI	%
Zinc oxide content [a]	ZnO	% (by mass)
Zinc oxide viscosity [a]	ZOV	mPa·s [b]
Zinc pentamethylene dithiocarbamate [a]	ZPMC	%
Zinc stability time [a]	ZST	s

[a] Applicable to latex.

[b] 1 mPa·s = 1 cP.

[c] Hexadecyl-trimethyl-ammonium bromide (IUPAC name).

[d] 1 mN/m = 1 dyn/cm.

ICS 83.060

Price based on 6 pages