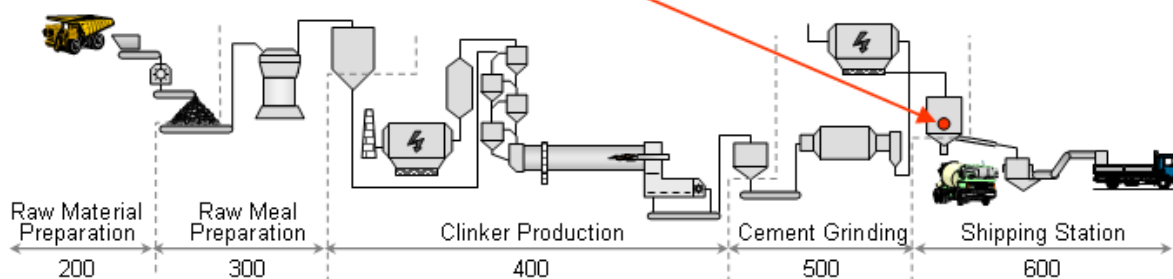
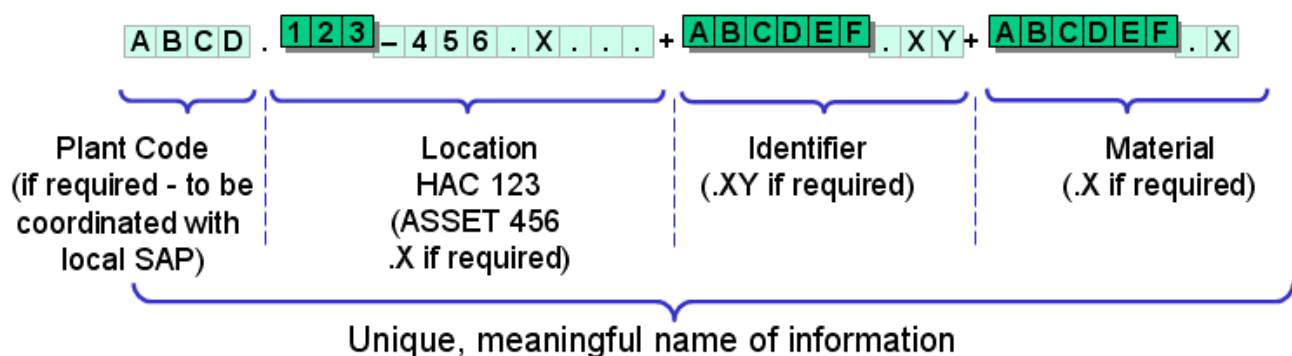


Holcim Technical Code - HTC

Holcim Group Support Ltd
Cement Manufacturing Services



Holcim Technical Code - HTC

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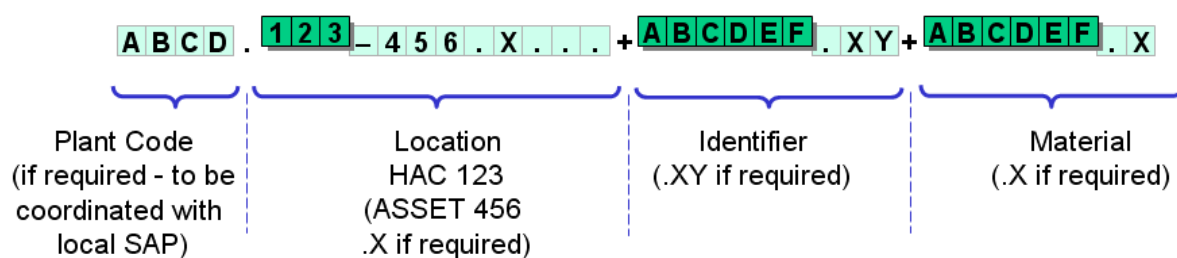
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Introduction

The present manual describes the Holcim Technical Code, which describes information in signals used in the TIS (Technical Information System) for reporting. The definitions used in this manual are compliant with the definitions in HARP (Holcim Accounting and Reporting Manual) and HIP (Holcim Information Platform).

The structure of the HTC is made like that to have a common language and description in the different systems like SAP, DW (Data warehouse) and TIS. The codes are unique names for identification of information within global systems. The intention is to have meaningful tag names which are easy to sort, to search and to maintain. Additionally with a common code it should be avoided to have individual "alias" names in each system interface.

The chapters of this manual are structured according the hierarchy of the code.



- ❑ **Locations** should generally be structured according the HAC in the plant which means according the main- pre-process- and auxiliary- Cost Centres.
- ❑ **Identifiers** should be structured into laboratory (analysis), process and production data which should be according Harmonised Technical Data (HTD)
- ❑ **Materials** should be structured as defined in the HARP manual.

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1. PLANTS

The plant codes shall be used as defined in the ATR respectively according the definition in the local SAP. As a reference the plant codes according ATR are listed below.

	Company	Abbr.	Country	Plant	Abbr.	Type
Africa (incl. Middle East)	Ciments de Guinee Guinea	GIN	Guinea	Conakry	CY	M
	Egyptian Cement Company	EGY	Egypt	El Soukhna	ES	D
	Holcim Lebanon	LBN	Lebanon	Chekka	CH	D
	Holcim Lebanon	LBN	Lebanon	Chekka White Cement	CW	D
	Holcim Madagascar	MDG	Madagascar	Antsirabe	AN	D
	Holcim Morocco	MAR	Morocco	Fès	FE	D
	Holcim Morocco	MAR	Morocco	Nador	NA	M
	Holcim Morocco	MAR	Morocco	Oujda	OJ	D
	Holcim Morocco	MAR	Morocco	Settat	SA	D
	Holcim Reunion	REU	Reunion	Le Port	LE	M
	Holcim South Africa	ZAF	South Africa	Dudfield	DF	D
	Holcim South Africa	ZAF	South Africa	Roodeport	RP	M
	Holcim South Africa	ZAF	South Africa	Slagment Vanderbijlpark	SV	M
	Holcim South Africa	ZAF	Tanzania	Tanga	TN	D
	Holcim South Africa	ZAF	South Africa	Ulco	UL	D
	SOCIMAT Ivory Coast	CIV	Ivory Coast	Abidjan	AJ	M
Asia, Oceania	ACC India	INDA	India	Bargarh	BG	D
	ACC India	INDA	India	Chaibasa	JP	D
	ACC India	INDA	India	Chanda	GG	D
	ACC India	INDA	India	Damodhar	DM	M
	ACC India	INDA	India	Gagal 1	G1	D
	ACC India	INDA	India	Gagal 2	G2	D
	ACC India	INDA	India	Jamul	JL	D
	ACC India	INDA	India	Kymore	KY	D
	ACC India	INDA	India	Lakheri	LK	D
	ACC India	INDA	India	Madukkarai	MK	D
	ACC India	INDA	India	Sindri	SN	M
	ACC India	INDA	India	Tikaria	TK	M
	ACC India	INDA	India	Wadi 1	W1	D
	ACC India	INDA	India	Wadi 2	W2	D
	Ambuja Cements India	IND	India	Ambuja Nagar	AM	D
	Ambuja Cements India	IND	India	Bhatapara	BT	D
	Ambuja Cements India	IND	India	Bhatinda	BI	M
	Ambuja Cements India	IND	India	Dadri	DD	M
	Ambuja Cements India	IND	India	Darlaghat	DL	D
	Ambuja Cements India	IND	India	Farakka	FK	M
	Ambuja Cements India	IND	India	Maratha	MT	D
	Ambuja Cements India	IND	India	Rabriyawas	RB	D
	Ambuja Cements India	IND	India	Rauri	RU	D
	Ambuja Cements India	IND	India	Ropar	RR	M
	Ambuja Cements India	IND	India	Sankrail	SK	M
	Ambuja Cements India	IND	India	Surat	SX	M
	Ambuja Cements India	IND	India	Utharanchal	UT	M
	Cement Australia	AUS	Australia	Bulwer Island	BU	M
	Cement Australia	AUS	Australia	Gladstone	GS	D
	Cement Australia	AUS	Australia	Kandos	KN	D
	Cement Australia	AUS	Australia	Railton	RL	D
	Cement Australia	AUS	Australia	Rockhampton	RH	W
	Garadagh Cement Azerbaijan	AZE	Azerbaijan	Garadagh	GD	W
	Holcim Bangladesh	BGD	Bangladesh	Meghnaghat 1	M1	M
	Holcim Bangladesh	BGD	Bangladesh	Meghnaghat 2	M2	M
	Holcim Bangladesh	BGD	Bangladesh	Mongla	MA	M
	Holcim Indonesia	IDN	Indonesia	Cilacap 2	C2	D
	Holcim Indonesia	IDN	Indonesia	Narogong 1	N1	D
	Holcim Indonesia	IDN	Indonesia	Narogong 2	N2	D
	Holcim Malaysia	MYS	Malaysia	Pasir Gudang	PG	M
	Holcim New Caledonia	NCLH	New Caledonia	Nouméa	NU	M

	Company	Abbr.	Country	Plant	Abbr.	Type
	Holcim New Zealand	NZL	New Zealand	Westport	WP	W
	Holcim Philippines	PHL	Philippines	Bulacan	BL	D
	Holcim Philippines	PHL	Philippines	Davao	DV	D
	Holcim Philippines	PHL	Philippines	La Union	LN	D
	Holcim Philippines	PHL	Philippines	Luga-it	LG	D
	Holcim Sri Lanka	LKA	Sri Lanka	Galle	GL	M
	Holcim Sri Lanka	LKA	Sri Lanka	Palavi	PA	D
	Holcim Vietnam	VNM	Viet Nam	Cat Lai	CL	M
	Holcim Vietnam	VNM	Viet Nam	Hon Chong	HN	D
	Holcim Vietnam	VNM	Viet Nam	Thi Vai	TV	M
	Huaxin Cement China	CHN	China	Chibi	CB	D
	Huaxin Cement China	CHN	China	Enshi	EN	D
	Huaxin Cement China	CHN	China	Huangshi	HU	D
	Huaxin Cement China	CHN	China	Nantong	NT	M
	Huaxin Cement China	CHN	China	Suzhou	SZ	D
	Huaxin Cement China	CHN	China	Wugang	WG	M
	Huaxin Cement China	CHN	China	Wuxue	WX	D
	Huaxin Cement China	CHN	China	Xiang Gang	XG	M
	Huaxin Cement China	CHN	China	Xiangfan	XF	D
	Huaxin Cement China	CHN	China	Xiantao	XT	M
	Huaxin Cement China	CHN	China	Yangxin	YA	D
	Huaxin Cement China	CHN	China	Yichang	YI	D
	Huaxin Cement China	CHN	China	Yueyang	YY	M
	Huaxin Cement China	CHN	China	Zetang	ZE	D
	Huaxin Cement China	CHN	China	Zhaotong	ZT	D
	Siam City Cement Company Thailand	THA	Thailand	Saraburi 1	S1	D
	Siam City Cement Company Thailand	THA	Thailand	Saraburi 2	S2	D
	Siam City Cement Company Thailand	THA	Thailand	Saraburi 3	S3	D
Europe	Group Russia	RUS	Russian Federation	Shurovo	SH	W
	Group Russia	RUS	Russian Federation	Shurovo White Cement	SW	W
	Group Russia	RUS	Russian Federation	Volsk	VC	W
	Holcim Bulgaria	BGR	Bulgaria	Beli Izvor	BE	D
	Holcim Bulgaria	BGR	Bulgaria	Pleven	PE	D
	Holcim Croatia	HRV	Croatia	Koromacno	KO	D
	Holcim Czech Republic	CZE	Czech Republic	Prachovice	PR	D
	Holcim Germany	DEU	Germany	Bremen	BR	M
	Holcim Germany	DEU	Germany	Höfer	HV	D
	Holcim Germany	DEU	Germany	Lägerdorf	LD	D
	Holcim Hungary	HUN	Hungary	Lábatlan	LA	W
	Holcim Hungary	HUN	Hungary	Miskolc	MS	D
	Holcim Italy	ITA	Italy	Merone	ME	D
	Holcim Italy	ITA	Italy	Morano	MO	M
	Holcim Italy	ITA	Italy	Ternate	TE	D
	Holcim Lebanon	LBN	Cyprus	Kalecik	KA	M
	Holcim Romania	ROM	Romania	Alesd	AE	D
	Holcim Romania	ROM	Romania	Campulung	CP	D
	Holcim Romania	ROM	Romania	Turda White Cement	TW	W
	Holcim Serbia	SER	Serbia	Novi Popovac	NP	D
	Holcim Slovak Republic	SVK	Slovak Republic	Rohoznik	RN	D
	Holcim Slovak Republic	SVK	Slovak Republic	Rohoznik White Cement	RW	D
	Holcim South Germany	DEUB	Germany	Dotternhausen	DO	D
	Holcim Spain	ESP	Spain	Carboneras	CS	D
	Holcim Spain	ESP	Spain	Gador	GA	D
	Holcim Spain	ESP	Spain	Jerez de la Frontera	JE	D
	Holcim Spain	ESP	Spain	Lorca	LO	D
	Holcim Spain	ESP	Spain	Torredonjimeno	TD	D
	Holcim Spain	ESP	Spain	Yeles	YE	D
	Holcim Switzerland	CHE	Switzerland	Brunnen	BN	D
	Holcim Switzerland	CHE	Switzerland	Eclépens	EC	D
	Holcim Switzerland	CHE	Austria	Lorüns	LR	M
	Holcim Switzerland	CHE	Switzerland	Siggenthal	SG	D
	Holcim Switzerland	CHE	Switzerland	Untervaz	UV	D

	Company	Abbr.	Country	Plant	Abbr.	Type
	Holcim Western Europe	FRBE	France	Altkirch	AL	D
	Holcim Western Europe	FRBE	France	Dannes	DN	D
	Holcim Western Europe	FRBE	France	Dunkerque	DK	M
	Holcim Western Europe	FRBE	France	Ebange	EB	M
	Holcim Western Europe	FRBE	Belgium	Haccourt	HC	M
	Holcim Western Europe	FRBE	France	Héming	HE	D
	Holcim Western Europe	FRBE	France	Lumbres	LU	W
	Holcim Western Europe	FRBE	Belgium	Obourg	OB	W
	Holcim Western Europe	FRBE	France	Rocheftort	RF	D
Latin America	Sharr Hani I Elezit Kosovo	YUGH	Kosovo	Hani i Elezit	HA	D
	Cemento de El Salvador	SLV	El Salvador	El Ronco	ER	D
	Cemento de El Salvador	SLV	El Salvador	Maya	MY	D
	Cemento Polpaico Chile	CHL	Chile	Coronel	CR	M
	Cemento Polpaico Chile	CHL	Chile	Mejillones	MJ	M
	Cemento Polpaico Chile	CHL	Chile	Polpaico	PO	D
	Cementos Colon Dominican Republic	DOM	Dominican Republic	Santo Domingo	SD	M
	Cementos Progreso S.A.	GTM	Guatemala	La Pedrera	LP	D
	Cementos Progreso S.A.	GTM	Guatemala	San Miguel	SM	D
	Ciments Guyanaise	GUF	French Guiana	Dégrades de Cannes	DC	M
	Holcim Apasco Mexico	MEX	Mexico	Acapulco	AC	D
	Holcim Apasco Mexico	MEX	Mexico	Apaxco	AP	D
	Holcim Apasco Mexico	MEX	Mexico	Macuspana	MP	D
	Holcim Apasco Mexico	MEX	Mexico	Orizaba	OZ	D
	Holcim Apasco Mexico	MEX	Mexico	Ramos Arizpe	RA	D
	Holcim Apasco Mexico	MEX	Mexico	Tecoman	TC	D
	Holcim Brazil	BRA	Brazil	Barroso	BO	D
	Holcim Brazil	BRA	Brazil	Cantagalo	CT	D
	Holcim Brazil	BRA	Brazil	Pedro Leopoldo	PL	D
	Holcim Brazil	BRA	Brazil	Vitória	VI	M
	Holcim Colombia	COL	Colombia	Nobsa	NO	D
	Holcim Costa Rica	CRI	Costa Rica	Cartago	CG	D
	Holcim Ecuador	ECU	Ecuador	Guayaquil	GU	D
	Holcim Ecuador	ECU	Ecuador	Latacunga	LT	M
	Holcim Nicaragua	NIC	Nicaragua	Nagarote	NG	M
	Holcim Venezuela	VEN	Venezuela	Cumarebo	CU	D
	Holcim Venezuela	VEN	Venezuela	San Sebastián	SB	D
	Juan Minetti Argentina	ARG	Argentina	Campana	CM	M
	Juan Minetti Argentina	ARG	Argentina	Capdeville	CA	D
	Juan Minetti Argentina	ARG	Argentina	Malagueño	MG	D
	Juan Minetti Argentina	ARG	Argentina	Puesto Viejo	PV	D
	Juan Minetti Argentina	ARG	Argentina	Yocsina	YO	D
	Panama Cement	PAN	Panama	Quebrancha	QB	M
North America	Holcim USA	USA	USA	Ada	AD	W
	Holcim USA	USA	USA	Artesia	AR	W
	Holcim USA	USA	USA	Birmingham	BH	M
	Holcim USA	USA	USA	Chicago	CI	M
	Holcim USA	USA	USA	Clarksville	CV	W
	Holcim USA	USA	USA	Devil's Slide	DS	D
	Holcim USA	USA	USA	Dundee	DU	W
	Holcim USA	USA	USA	Holly Hill	HH	D
	Holcim USA	USA	USA	Mason City	MC	D
	Holcim USA	USA	USA	Midlothian	ML	D
	Holcim USA	USA	USA	Portland	PD	D
	Holcim USA	USA	USA	Theodore	TH	D
	Holcim USA	USA	USA	Trident	TR	W
	Holcim USA	USA	USA	Weirton	WE	M
	St. Lawrence Cement Canada	CAN	USA	Camden	CN	M
	St. Lawrence Cement Canada	CAN	USA	Catskill	CK	W
	St. Lawrence Cement Canada	CAN	USA	Hagerstown	HT	D
	St. Lawrence Cement Canada	CAN	Canada	Joliette	JO	D
	St. Lawrence Cement Canada	CAN	Canada	Mississauga	MI	D

D=dry, W=wet, M=Mill

2. LOCATIONS

Examples for laboratory samples, Packing type and Coal Extension

5S = Shift

5H = Hour (Hourly could also be 2 or 4 hourly, or representing a certain tonnage)

5D = Day (Daily could also be a tonnage (e.g. for cement composite sample))

5W = Week

5M = Month

5T= total (up to)

HAC 123 = as detailed as required, not required positions are 0 (=general)

HAC456 HAC Position 4,5,6 only if required

Materials from different suppliers A,B,C,D shall only be distinguished if required and if stored in different areas 1,2,3,4 else and where required, different customers are to be distinguished as separate attribute in TIS/LIMS/SAP

HTC Location						
HAC123	HAC 45 or Ext.	Location	Fequency	Extension	Cost Center (HAC1)	Group (HAC2)
110	.1	Limestone Quarry A	On blasting	Quarry A	Raw materials extraction	Extraction of limestone
110	.2	Limestone Quarry B	On blasting	Quarry B	Raw materials extraction	Extraction of limestone
120	.1	Clay Pit A	On extraction	Pit A	Raw materials extraction	Extraction of clay or marl
120	.2	Clay Pit B	On extraction	Pit B	Raw materials extraction	Extraction of clay or marl
2E0	.1	Correctives storage 1	On delivery	Supplier A	Raw material preparation	Receiving of raw material
2E0	.2	Correctives storage 2	On delivery	Supplier B	Raw material preparation	Receiving of raw material
2E0	.3	Correctives storage 3	On delivery	Supplier C	Raw material preparation	Receiving of raw material
2E0	.4	Correctives storage 4	On delivery	Supplier D	Raw material preparation	Receiving of raw material
X00	.1	Correctives storage 1	On preparation	Supplier A	Correctives prep. & hand.	Correctives prep. & hand.
X00	.2	Correctives storage 2	On preparation	Supplier B	Correctives prep. & hand.	Correctives prep. & hand.
X00	.3	Correctives storage 3	On preparation	Supplier C	Correctives prep. & hand.	Correctives prep. & hand.
X00	.4	Correctives storage 4	On preparation	Supplier D	Correctives prep. & hand.	Correctives prep. & hand.
W00		External Location	On delivery	Supplier A	Alt. raw mat. prep. & han.	
W01		Paper sludge storage	On delivery	Supplier A	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W01		Paper sludge storage	On delivery	Supplier B	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W01		Paper sludge storage	On delivery	Supplier C	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W01		Paper sludge storage	On delivery	Supplier D	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W02		AI sludge storage	On delivery	Supplier A	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W02		AI sludge storage	On delivery	Supplier B	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W02		AI sludge storage	On delivery	Supplier C	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
W02		AI sludge storage	On delivery	Supplier D	Alt. raw mat. prep. & han.	Alt. raw mat. prep. & han.
K00		External Location	On delivery	Supplier A	Gyps. & add. prep.and hand.	
K10	.1	Additive storage 1	On delivery	Supplier A	Gyps. & add. prep.and hand.	Unloading and storage
K10	.2	Additive storage 2	On delivery	Supplier B	Gyps. & add. prep.and hand.	Unloading and storage
K10	.3	Additive storage 3	On delivery	Supplier C	Gyps. & add. prep.and hand.	Unloading and storage
K10	.4	Additive storage 4	On delivery	Supplier D	Gyps. & add. prep.and hand.	Unloading and storage
K10	.5	Grinding Aid storage	On delivery	Supplier E	Gyps. & add. prep.and hand.	Unloading and storage
S00		Measurement point	Monthly	Collector 1	Environmental Protection	Miscellaneous equipment
TE0		MIC storage	On delivery	Supplier A	Mineral comp. prep. & hand.	Receiving of MIC
TE0		MIC storage	On delivery	Supplier B	Mineral comp. prep. & hand.	Receiving of MIC
TE0		MIC storage	On delivery	Supplier C	Mineral comp. prep. & hand.	Receiving of MIC
TE0		MIC storage	On delivery	Supplier D	Mineral comp. prep. & hand.	Receiving of MIC
T10		MIC storage	On delivery	Supplier A	Mineral comp. prep. & hand.	Mineral comp. prep. & hand.
T10		MIC storage	On delivery	Supplier B	Mineral comp. prep. & hand.	Mineral comp. prep. & hand.
T10		MIC storage	On delivery	Supplier C	Mineral comp. prep. & hand.	Mineral comp. prep. & hand.
T10		MIC storage	On delivery	Supplier D	Mineral comp. prep. & hand.	Mineral comp. prep. & hand.
5E0		Clinker storage	On delivery	Supplier A	Cement grinding	Receiving of clinker
L11		Raw Coal storage	On delivery	Supplier A,B	Trad. fuel prep. and hand.	Undloading and storage
L12		Petcoke storage	On delivery	Supplier A,B	Trad. fuel prep. and hand.	Undloading and storage
L13		Fuel Oil Tank	On delivery	Supplier A,B	Trad. fuel prep. and hand.	Undloading and storage
V00		External Location	On delivery	Supplier A	Alt. fuel prep. and hand.	
V11	.1	Waste Oil Tank 1	On delivery	Supplier A	Alt. fuel prep. and hand.	Undloading and storage
V11	.2	Waste Oil Tank 2	On delivery	Supplier B	Alt. fuel prep. and hand.	Undloading and storage

HTC Location						
HAC123	HAC 45 or Ext.	Location	Frequency	Extension	Cost Center (HAC1)	Group (HAC2)
V11	.3	Waste Oil Tank 3	On delivery	Supplier C	Alt. fuel prep. and hand.	Undloading and storage
V11	.4	Waste Oil Tank 4	On delivery	Supplier D	Alt. fuel prep. and hand.	Undloading and storage
V12		Tyre storage	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V13		Saw dust storage	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V14		Plastic storage	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
L01	.5H	Coal Mill 1	Hourly	Hourly	Trad. fuel prep. and hand.	Grinding
L01	.5D	Coal Mill 1	Daily	Daily	Trad. fuel prep. and hand.	Grinding
L01	.5W	Coal Mill 1	Weekly	Weekly	Trad. fuel prep. and hand.	Grinding
L01	.5M	Coal Mill 1	Monthly	Monthly	Trad. fuel prep. and hand.	Grinding
L62	.5H	Coal Mill 2	Hourly	Hourly	Trad. fuel prep. and hand.	Grinding Mill Circuit
L62	.5D	Coal Mill 2	Daily	Daily	Trad. fuel prep. and hand.	Grinding Mill Circuit
L62	.5W	Coal Mill 2	Weekly	Weekly	Trad. fuel prep. and hand.	Grinding Mill Circuit
L62	.5M	Coal Mill 2	Monthly	Monthly	Trad. fuel prep. and hand.	Grinding Mill Circuit
290	-3M1.5H	Preblending bed 1	Hourly	Bed 1	Raw mat. preparation	Transport/storage of r.m.
290	-3M2.5H	Preblending bed 2	Hourly	Bed 2	Raw mat. preparation	Transport/storage of r.m.
290	-001.5H	Limestone storage 1	Hourly	Storage 1	Raw mat. preparation	Transport/storage of r.m.
290	-002.5H	Limestone storage 2	Hourly	Storage 2	Raw mat. preparation	Transport/storage of r.m.
250	-001.5H	Clay storage 1	Hourly	Storage 1	Raw mat. preparation	Transport/storage of r.m.
250	-002.5H	Clay storage 2	Hourly	Storage 2	Raw mat. preparation	Transport/storage of r.m.
301	.5H	Raw Mill 1	Hourly	Hourly	Raw meal preparation	Raw meal grinding
301	.5D	Raw Mill 1	Daily	Daily	Raw meal preparation	Raw meal grinding
362	.5H	Raw Mill 2	Hourly	Hourly	Raw meal preparation	Raw meal grinding mill
362	.5D	Raw Mill 2	Daily	Daily	Raw meal preparation	Raw meal grinding mill
393	.5H	Raw Mill 3	Hourly	Hourly	Raw meal preparation	Raw meal grinding transport
393	.5D	Raw Mill 3	Daily	Daily	Raw meal preparation	Raw meal grinding transport
411	.5H	Feed Kiln 1	Hourly	Hourly	Clinker production	Kiln feed system
411	.5D	Feed Kiln 1	Daily	Daily	Clinker production	Kiln feed system
412	.5H	Feed Kiln 2	Hourly	Hourly	Clinker production	Kiln feed system
412	.5D	Feed Kiln 2	Daily	Daily	Clinker production	Kiln feed system
413	.5H	Feed Kiln 3	Hourly	Hourly	Clinker production	Kiln feed system
413	.5D	Feed Kiln 3	Daily	Daily	Clinker production	Kiln feed system
441	-Z40.5H	Kiln 1 Cyclone 4	Hourly	Hourly	Clinker production	Preheating
441	-Z40.5D	Kiln 1 Cyclone 4	Daily	Daily	Clinker production	Preheating
442	-Z4A.5D	Kiln 2 Cyclone 4 A	Daily	Daily	Clinker production	Preheating
442	-Z4B.5D	Kiln 2 Cyclone 4 B	Daily	Daily	Clinker production	Preheating
443	.5H	Kiln 3 Preheater	Hourly	Hourly	Clinker production	Preheating
443	.5D	Kiln 3 Preheater	Daily	Daily	Clinker production	Preheating
4A1	.5H	By-pass kiln 1	Shift	Shift	Clinker production	By-pass system
4A1	.5D	By-pass kiln 1	Daily	Daily	Clinker production	By-pass system
4A2	.5S	By-pass kiln 2	Shift	Shift	Clinker production	By-pass system
4A2	.5D	By-pass kiln 2	Daily	Daily	Clinker production	By-pass system
4A3	.5S	By-pass kiln 3	Shift	Shift	Clinker production	By-pass system
4A3	.5D	By-pass kiln 3	Daily	Daily	Clinker production	By-pass system
491	.5H	Cooler Kiln 1	Hourly	Hourly	Clinker production	Clinker transp. and stor.
491	.5D	Cooler Kiln 1	Daily	Daily	Clinker production	Clinker transp. and stor.
492	.5H	Cooler Kiln 2	Hourly	Hourly	Clinker production	Clinker transp. and stor.
492	.5D	Cooler Kiln 2	Daily	Daily	Clinker production	Clinker transp. and stor.
493	.5H	Cooler Kiln 3	Hourly	Hourly	Clinker production	Clinker transp. and stor.
493	.5D	Cooler Kiln 3	Daily	Daily	Clinker production	Clinker transp. and stor.
501	.5H	Cement Mill 1	Hourly	Hourly	Cement grinding	Cement grinding
501	.5S	Cement Mill 1	Shift	Shift	Cement grinding	Cement grinding
501	.5D	Cement Mill 1	Daily	Daily	Cement grinding	Cement grinding
502	.5H	Cement Mill 2	Hourly	Hourly	Cement grinding	Cement grinding
502	.5S	Cement Mill 2	Shift	Shift	Cement grinding	Cement grinding
502	.5D	Cement Mill 2	Daily	Daily	Cement grinding	Cement grinding
503	.5H	Cement Mill 3	Hourly	Hourly	Cement grinding	Cement grinding
503	.5S	Cement Mill 3	Shift	Shift	Cement grinding	Cement grinding
503	.5D	Cement Mill 3	Daily	Daily	Cement grinding	Cement grinding
504	.5H	Cement Mill 4	Hourly	Hourly	Cement grinding	Cement grinding

HTC Location						
HAC123	HAC 45 or Ext.	Location	Frequency	Extension	Cost Center (HAC1)	Group (HAC2)
504	.5S	Cement Mill 4	Shift	Shift	Cement grinding	Cement grinding
504	.5D	Cement Mill 4	Daily	Daily	Cement grinding	Cement grinding
590	-3S1	Cement Silo 1	Daily	Silo 1	Cement grinding	Cement grinding
590	-3S2	Cement Silo 2	Daily	Silo 2	Cement grinding	Cement grinding
590	-3S3	Cement Silo 3	Daily	Silo 3	Cement grinding	Cement grinding
590	-3S4	Cement Silo 4	Daily	Silo 4	Cement grinding	Cement grinding
590	-3S5	Cement Silo 5	Daily	Silo 5	Cement grinding	Cement grinding
590	-3S6	Cement Silo 6	Daily	Silo 6	Cement grinding	Cement grinding
590	-3S7	Cement Silo 7	Daily	Silo 7	Cement grinding	Cement grinding
590	-3S8	Cement Silo 8	Daily	Silo 8	Cement grinding	Cement grinding
590	-3S9	Cement Silo 9	Daily	Silo 9	Cement grinding	Cement grinding
590	-3SA	Cement Silo 10	Daily	Silo 10	Cement grinding	Cement grinding
590	-3SA.5W	Cement Silo 10	Weekly	Silo 10	Cement grinding	Cement grinding
6E0		Cement storage 1	On delivery	Supplier A,B	Packing and shipping	Receiving of cement
600	.1	Competitor A	On request	Competitor A	Packing and shipping	Packing and shipping
600	.2	Competitor B	On request	Competitor B	Packing and shipping	Packing and shipping
600	.3	Competitor C	On request	Competitor C	Packing and shipping	Packing and shipping
600	.4	Competitor D	On request	Competitor D	Packing and shipping	Packing and shipping
6Y0	.1	Customer A	On request	Customer A	Packing and shipping	Bulk silo at customer site
6Y0	.2	Customer B	On request	Customer B	Packing and shipping	Bulk silo at customer site
6Y0	.3	Customer C	On request	Customer C	Packing and shipping	Bulk silo at customer site
6Y0	.4	Customer D	On request	Customer D	Packing and shipping	Bulk silo at customer site
H40		XRF equipment	On request		Quality Control and laboratory	X-Ray analysing section
V15		Liquid Tank	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V16	.1	Solid Tank	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V16	.2	Solid Tank	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V17		Sludge Tank	On delivery	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V18		Liquid Tank	On preparation	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V19	.1	Solid Tank	On preparation	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V19	.2	Solid Tank	On preparation	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage
V20		Sludge Tank	On preparation	Supplier A,B	Alt. fuel prep. and hand.	Undloading and storage

HTC Location						
HAC123	HAC 45 or Ext.	Location	Frequency	Extension	Cost Center (HAC1)	Group (HAC2)

Example Packing Type

62		bulk				
	-B99			Big Bag	Distribution outbound	Packing Type
66y		packing type				
	-B03	L = sling		3 kg bag	Distribution outbound	Packing Type
	-B05	A = strap		5 kg bag	Distribution outbound	Packing Type
	-B25	W = wrapped		25 kg bag	Distribution outbound	Packing Type
	-B35	D = directly loaded		35 kg bag	Distribution outbound	Packing Type
	-B40	0 = all		40 kg bag	Distribution outbound	Packing Type
	-B42			42,5 kg bag	Distribution outbound	Packing Type
	-B50			50 kg bag	Distribution outbound	Packing Type

67y **palletised**

Examples (for all production lines)

660-B50+TSROAD+CEM	50 kg bag cement shipped by road
660-B35+TSHIP+C13N	35 kg bag type CEM I 32.5 N shipped
620-B99+TSHIP.A+CEM	big bag cement shipped (Year Planned Value)
660+TSROAD+CEM	bag cement shipped by road
67W+TSRAIL+C13N	palletised bag type CEM I 32.5 N, wrapped, shipped by rail
67D+TSRAIL+C13N	palletised bag type CEM I 32.5 N, directly loaded, shipped by rail
670+TSRAIL+C13N	all palletised bag type CEM I 32.5 N shipped by rail
620+TSHIP+CEM	shipped bulk cement
600+TSHIP+CEM	shipped cement (according HARP)
700+TSOLD+CEM	all sold cement (according HARP)

Example for coal with and without coal grinding**HTC Location-Identifier-Material**

L01+TPURCH+COAL	Coal purchased
L02+TPURCH+COAL.D	Fine coal purchased
L11+TINV+COAL	Coal on stock
L12+TINV+COAL.D	Fine coal on stock
L61+TCONS+COAL	Coal consumed for Grinding
L01+TPROD+COAL	Coal produced
L91+TINV+COAL	Produced coal (=fine coal) on stock
481+TCONS+COAL	Coal input to main firing kiln 1
451+TCONS+COAL	Coal input to precalciner firing kiln 1
482+TCONS+COAL	Coal input to main firing kiln 2

3. IDENTIFIER HTD

EMI = EMIssion data
 GEN = GENeral definition
 HTD = Harmonized Technical Data
 MAC = MAintenance Cement data

Extensions for Identifier HTD see separate sheet

HTC Identifier	Name	Usage	Unit	Comment
*1)	accidents with time lost	HTD	#	
*1)	frequency rate	HTD	#	
*1)	severity rate	HTD	#	
ACCMTI	Accidents with Medical Treatment Injury	HTD	#	
ACCTL	Accidents with Time Lost	HTD	#	
AVAG	Gross Availability index	HTD/MAC	%	
AVAG13	Gross Availability index, previous 13 weeks	HTD/MAC	%	
AVAG52	Gross Availability index, previous 52 weeks	HTD/MAC	%	
AVAN	Net Availability index	HTD/MAC	%	
AVAN13	Net Availability index, previous 13 weeks	HTD/MAC	%	
AVAN52	Net Availability index, previous 52 weeks	HTD/MAC	%	
BDP	Best Demonstrated Practice	HTD/MAC	t/d or t/h	
BPH	Bags per hour	HTD	#	
BPROD	Bags produced	HTD	#	
BSHIP	Bags shipped	HTD	#	
CEF	cement factor	HTD	%	
CF	clinker factor production	HTD	%	
CFEX	extended clinker factor	HTD	%	
COMEMI	Compliance to emission requirements	HTD	%	
COMQR	Compliance to quality requirements	HTD	%	
COUN	number of stops over 24 hours duration	HTD/MAC	#	
COUN2	number of stops production less than 2 hours	HTD/MAC	#	
COUN24	number of stops >= 2h, < 24 hours	HTD/MAC	#	
COUNM	number of stops mechanical	HTD/MAC	#	
COUNMA	number of stops maintenance	HTD/MAC	#	
COUNP	number of stops process	HTD/MAC	#	
COUNPD	number of stops production	HTD/MAC	#	
COUNT	counts total (number #)	GEN	#	
COUNTE	number of external stoppages	HTD/MAC	#	
COUNTI	number of internal stoppages	HTD/MAC	#	
COUNTO	number of own trucks	HTD/RMC	#	
COUNTS	number of subcontracted trucks	HTD/RMC	#	
DAY	daycount	EMI	#	
DAYNC	non compliant day count	EMI	#	
DENSI	density	GEN	g/l	
FTEO	own personnel production	HTD	#	
FTES	subcontracted personnel	HTD	#	

HTC Identifier	Name	Usage	Unit	Comment
GEMI	grams emission	EMI	g	
GEXPLT	specific explosives consumption per ton blasted	HTD	g/t	
HOUPMR	PMR Work in Percent to Total Maintenance Work	HTD/M AC	%	
HOUPMR.1	PMR Hours (PM02 only; Automatic generated Workorders)	HTD/M AC	%	
HOURL	actual operating time	HTD/M AC	h	
HOURL1	actual operating time, for Holcim EMR	EMI	h	
HOURLC	calender time	HTD/M AC	h	
HOURLD	idle time (equipment available, but not operating)	HTD/M AC	h	
HOURE	electrical downtime	HTD/M AC	h	
HOURLI	instrument downtime	HTD/M AC	h	
HOURLM	mechanical downtime	HTD/M AC	h	
HOURLMA	maintenance downtime	HTD/M AC	h	
HOURLN	net operatin time (actual operating time + idle time) HOURL + HOURLD			
HOURLO	other downtime (equip. not available, not operating)	HTD/M AC	h	
HOURLP	process downtime	HTD/M AC	h	
HOURLPD	production downtime	HTD/M AC	h	
HOURLS	actual stopped time	HTD/E MI	h	
HOURLUP	Unplanned Hours	HTD/M AC	%	
INJUR	Injuries	HTD	#	
KEMIGT	specific gross CO2 emissions	HTD/E MI	kg/t	
KEMINT	specific net CO2 emissions	HTD/E MI	kg/t	
KWH	electrical energy consumption	HTD	kWh	
KWHT	specific electrical energy consumption	HTD	kWh/t	
KWHTUP	specific electrical energy consumption up to	HTD	kWh/t	
KWHUP	electrical energy consumed up to	HTD	kWh	
LEVEL	Level of Silo	HTD	m	
LICONS	liter consumed	GEN	l	
LIOILT	specific diesel consumption per ton	HTD	l/t	
LIPROD	liter produced	GEN	l	
LOCAT	location name of different products	GEN	text	
MANHT	personell productivity	HTD	# h/t	
MGNM3	emission concentration	EMI	mg/m ³	
MJ	thermal energy consumption	HTD	MJ	
MJT	specific thermal energy consumption per ton	HTD	MJ/t	
MJTUP	specific thermal energy consumption per ton upto	HTD	MJ/t	
MOIST	moisture content	GEN	%	
MTBF	Mean Time Between Failure	HTD/M AC	h	
MTBF13	Mean Time Between Failure, previous 13 weeks	HTD/M AC	h	
MTBF52	Mean Time Between Failure, previous 52 weeks	HTD/M AC	h	
NEEMI	Notifiable events on emissions	EMI	#	
NGNM3	emission concentration	EMI	ng/m ³	

HTC Identifier	Name	Usage	Unit	Comment
OEEG	gross OEE	HTD	%	
OEEG13	gross OEE, previous 13 weeks	HTD	%	
OEEG52	gross OEE, previous 52 weeks	HTD	%	
OEEEN	net OEE	HTD	%	
OEEEN13	net OEE, previous 13 weeks	HTD	%	
OEEEN52	net OEE, previous 52 weeks	HTD	%	
OFSPEC	percent clinker out of specification	HTD	%	
PERC	percent ratio * 100	GEN	%	
PLANAT	Plan Attainment	HTD/MAC	%	
PRI	production rate index	HTD	%	
PRI13	production rate index, previous 13 weeks	HTD	%	
PRI52	production rate index, previous 52 weeks	HTD	%	
RATIO	ratio	GEN	/	
RCCT	specific cash cost	HTD	RC/t	
RCCVT	specific variable cash cost	HTD	RC/t	
RCET	specific electrical cost	HTD	RC/t	
RCFAT	specific alternative fuel cost	HTD	RC/t	
RCFT	specific fuel cost	HTD	RC/t	
RCFTT	specific traditional fuel cost	HTD	RC/t	
RCI	investment to maintain productive capacity and competitiveness	HTD	RC	
RCIT	specific investment to maintain productive capacity and competitiveness	HTD	RC/t	
RCITUP	specific Replacement Investment cost up to	HTD	RC/t	
RCMT	specific maintenance cost	HTD	RC/t	
RCPRV	specific average selling price per volume	HTD	RC/m³	
RCT	specific actual cost	HTD	RC/t	
RCTKM	specific actual cost per km	HTD	RC/tkm	
RCTUP	specific actual cost up to	HTD	RC/t	
RCV	specific actual cost per volume	HTD	RC/m³	
RCVT	specific variable actual cost	HTD	RC/t	
RCVTUP	specific variable actual cost up to	HTD	RC/t	
RSR	Raw material substitution rate	GEN	%	
SILO	Silo number => 591-000:00:SEL	HTD	#	e.g. mill feed to silo
SORT	sort name of different products	GEN	text	
STRIP	ratio of overburdon	HTD	%	
TCONS	volume (tons) consumed	GEN	t	
TCONSI	volume (tons) consumed internal	GEN	t	
TCONUP	volume (tons) consumed up to	GEN	t	
TEE	Thermal Economic Equivalent	HTD	%	
TEMI	volume (tons) emission	EMI	t	
TEMIG	gross volume (tons) emission	EMI	t	
TEMIN	net volume (tons) emission	EMI	t	
TEXTR	volume (tons) extracted	HTD	t	
TINV	volume (tons) inventory	GEN	t	
TLIFR	Lost Time Injury Frequency Rate	HTD	h	
TLISR	Lost Time Injury Severity Rate	HTD	h	
TPBAG	Tonnes produced in bags	HTD	t	
TPH	production rate	GEN	t/h	
TPRAIL	volume (tons) purchased rail	HTD	t	
TPROAD	volume (tons) purchased road	HTD	t	
TPROBY	volume (tons) produced by-product	HTD	t	
TPROD	volume (tons) produced	HTD	t	as well liters [l]
TPURCH	volume (tons) purchased	GEN	t	
TPURSH	volume (tons) purchased/shipped	HTD	t	
TPURTR	volume (tons) purchased/transferred	HTD	t	
TPURUP	volume (tons) purchased up to	GEN	t	
TPWWAY	volume (tons) purchased waterway	HTD	t	
TPYSTD	standard capacity / year	HTD	t/a	
TSHIP	volume (tons) shipped	HTD	t	
TSHIPI	volume (tons) plant internal shipment	GEN	t	

HTC Identifier	Name	Usage	Unit	Comment
TSHIPT	volume (tons) shipped to other Holcim plants	GEN	t	
TSOLD	volume (tons) sold	HTD	t	
TSR	Thermal Substitution Rate	HTD	%	
TSRAIL	volume (tons) shipped rail	HTD	t	
TSROAD	volume (tons) shipped road	HTD	t	
TSWWAY	volume (tons) shipped waterway	HTD	t	
TTRANS	volume (tons) transferred, received	GEN	t	
UGNM3	emission concentration	EMI	µg/m³	
VARI	Variation of cement mortar strength	HTD	%	
VOLU	volume produced(Nm3)	EMI	Nm³	
VSHIP	volume (m3) pumped	HTD	m³	
VSOLD	volume (m3) delivered sold	HTD	m³	
VSOLDC	volume (m3) sold customer	HTD	m³	
VTRUCK	volume (m3) delivered per Truck	HTD	m³/truck	
	*1) Financial indicators: To be defined			

4. IDENTIFIER EXTENSIONS

The two extensions can be used in combination to describe in detail the signal/log. The usage of only the extension 2 is not possible.

Extension 1	Extension 2	Name	Description
B		Budget	Budget value, used in Production reports (usually monthly values)
C		Cummulated	Used with CUM log
E		End value	Used for SK2 log to enter level at the end of period
F		Factor	Correction Factor, eg used in material balancing
G		Target / Goal	Target value used in DWOR
H/L/M/N		High/Low/Max/Min Limit	
J		Low performance	Used with Identifier TPH to track Low performance with stop log
K		Calculated	Log used with calculated signals with the result 0 and not NULL or v/v.
P		Plan	Used in DWOR for plan value (usually day)
Q		Base	Base value used in DWOR
R		Rolling average	
S		Start value / Initial	Used for SK2 log for indication of start inventory
T		Forecast	used with EOP log, calculated forecast
W		Weighted	Weigthed values, used eg for OEE calculation
X		Manual	Manual entered
	Y	Year	
	M	Month	
	W	Week	
	D	Day	
	S	Shift	
	H	Hour	
	U	13 Weeks	
	V	52 Weeks	

Examples

501+TPROD.CY+CEM	Cummulated year to date value for Cement Production of Mill 1
501+TPROD.EY+CEM	End of year forecast for Cement Production of Mill 1
501+TCONS.F+GYPSUM	Correction factor for Gypsum consumption and Cement Mill 1
302+TPROD.PM+RAMEAL	Planned monthly production for Raw Meal Production of Mill 2

5. IDENTIFIER ANALYSIS

Extension B = Bad (out of limits)
D = Dry
E = External analysis
G = Good (within limits)

I = Inorganic
O = Organic
R = Reference
S = Setpoint

T = Total
W = Wet
LD = LDMS Data

Automatic
Manual
Calculated

Unit mg/kg corresponds to ppm. mg/l shall normally be converted to mg/kg. Should separate Identifier be required for mg/l use XXX_MGL

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
0EXS1	length change mortar bar Na2SO4 0 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
0EXS2	length change mortar bar Na2SO4 0 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
0EXS3	length change mortar bar Na2SO4 0 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
0EXS4	length change mortar bar Na2SO4 0 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
0EXS5	length change mortar bar Na2SO4 0 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
0EXS6	length change mortar bar Na2SO4 0 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
0EXSA	length change mortar bar Na2SO4 0 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
10LC1	10days length change of cement mortar bar1	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10LC2	10days length change of cement mortar bar2	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10LC3	10days length change of cement mortar bar3	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10LC4	10days length change of cement mortar bar4	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10LC5	10days length change of cement mortar bar5	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10LC6	10days length change of cement mortar bar7	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10LCA	10days length change of cement mortar barA	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
10MSRA	mortar Sulfate Resistance 10D Average (AS2350.14)	mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
12MSRA	mortar Sulfate Resistance 12D Average (AS2350.14)	mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
13EXS1	length change mortar bar Na2SO4 13 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
13EXS2	length change mortar bar Na2SO4 13 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
13EXS3	length change mortar bar Na2SO4 13 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
13EXS4	length change mortar bar Na2SO4 13 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
13EXS5	length change mortar bar Na2SO4 13 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
13EXS6	length change mortar bar Na2SO4 13 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
13EXSA	length change mortar bar Na2SO4 13 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
14CCSA	concrete strength 14D	CONCRETE STRENGTH 14D	CONCRETE PRESS	PHYSLAB	MPa	M
14EXPR	14 days expansion mortar bar alkali reactivity	SOUNDNESS (NMX-C-180)	LENGTH COMPARATOR	PHYSLAB	%	C
14LC1	14days length change of cement mortar bar1	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
14LC2	14days length change of cement mortar bar2	Alkali-aggregate activity	Length comparator	Physi lab	%	M
14LC3	14days length change of cement mortar bar3	Alkali-aggregate activity	Length comparator	Physi lab	%	M
14LC4	14days length change of cement mortar bar4	Alkali-aggregate activity	Length comparator	Physi lab	%	M
14LC5	14days length change of cement mortar bar5	Alkali-aggregate activity	Length comparator	Physi lab	%	M
14LC6	14days length change of cement mortar bar7	Alkali-aggregate activity	Length comparator	Physi lab	%	M
14LCA	14days length change of cement mortar barA	Alkali-aggregate activity	Length comparator	Physi lab	%	M
14MSHA	mortar Shrinkage 14D Average (AS2350.13)	MORTAR SHRINKAGE 14D	LENGTH COMPARATOR	PHYSLAB	uStrain	M
14MSRA	mortar Sulfate Res 14D Avg (AS2350.14)	mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
15EXS1	lengthchange mortar bar Na2SO4 15week, bar1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
15EXS2	lengthchange mortar bar Na2SO4 15week, bar2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
15EXS3	lengthchange mortar bar Na2SO4 15week, bar3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
15EXS4	lengthchange mortar bar Na2SO4 15week, bar4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
15EXS5	lengthchange mortar bar Na2SO4 15week, bar5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
15EXS6	lengthchange mortar bar Na2SO4 15week, bar6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
15EXSA	lengthchange mortar bar Na2SO4 15week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
16EXS1	lengthchange mortar bar Na2SO4 16week, bar1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
16EXS2	lengthchange mortar bar Na2SO4 16week, bar2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
16EXS3	lengthchange mortar bar Na2SO4 16week, bar3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
16EXS4	lengthchange mortar bar Na2SO4 16week, bar4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
16EXS5	lengthchange mortar bar Na2SO4 16week, bar5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
16EXS6	lengthchange mortar bar Na2SO4 16week, bar6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
16EXSA	lengthchange mortar bar Na2SO4 16week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
16MSRA	mortar Sulfate Resistance 16D Average (AS2350.14)	Mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
180CSA	mortar compressive strength 180D average	MORTAR STRENGTH 180D	PRESS	PHYSLAB	MPa	M
180LC1	180days length change of cement mortar bar1	Alkali-aggregate activity	Length comparator	Physi lab	%	M
180LC2	180days length change of cement mortar bar2	Alkali-aggregate activity	Length comparator	Physi lab	%	M
180LC3	180days length change of cement mortar bar3	Alkali-aggregate activity	Length comparator	Physi lab	%	M
180LC4	180days length change of cement mortar bar4	Alkali-aggregate activity	Length comparator	Physi lab	%	M
180LC5	180days length change of cement mortar bar5	Alkali-aggregate activity	Length comparator	Physi lab	%	M
180LC6	180days length change of cement mortar bar6	Alkali-aggregate activity	Length comparator	Physi lab	%	M
180LCA	180days length change of cement mortar barA	Alkali-aggregate activity	Length comparator	Physi lab	%	M
1CCS1	concrete strength 1D measurement 1	CONCRETE STRENGTH 1D	CONCRETE PRESS	CONCLAB	MPa	M
1CCS2	concrete strength 1D measurement 2	CONCRETE STRENGTH 1D	CONCRETE PRESS	CONCLAB	MPa	M
1CCSA	concrete strength 1D	CONCRETE STRENGTH 1D	CONCRETE PRESS	PHYSLAB	MPa	M
1CS1	mortar compressive strength 1D measurem. 1	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CS2	mortar compressive strength 1D measurem. 2	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CS3	mortar compressive strength 1D measurem. 3	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CS4	mortar compressive strength 1D measurem. 4	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CS5	mortar compressive strength 1D measurem. 5	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CS6	mortar compressive strength 1D measurem. 6	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CSA	mortar compressive strength 1D average	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M
1CSNO	mortar compr strength 1D number of outliers	MORTAR STRENGTH 1D	PRESS	PHYSLAB	#	M
1CSS	mortar compr strength 1D standard deviation	MORTAR STRENGTH 1D	PRESS	PHYSLAB	MPa	M

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
1EXS1	length change mortar bar Na2SO4 1 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
1EXS2	length change mortar bar Na2SO4 1 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
1EXS3	length change mortar bar Na2SO4 1 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
1EXS4	length change mortar bar Na2SO4 1 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
1EXS5	length change mortar bar Na2SO4 1 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
1EXS6	length change mortar bar Na2SO4 1 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
1EXSA	length change mortar bar Na2SO4 1 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
1LEN1	1day length of cement mortar bar1	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1LEN2	1day length of cement mortar bar2	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1LEN3	1day length of cement mortar bar3	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1LEN4	1day length of cement mortar bar4	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1LEN5	1day length of cement mortar bar5	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1LEN6	1day length of cement mortar bar6	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1LENA	1day length of cement mortar barA	Alkali-aggregate activity	Length comparator	Physi lab	mm	M
1PW1	mort. comp. strength 1D prism weight measur1	MORTAR STRENGTH 1D	BALANCE	PHYSLAB	g	M
1PW2	mort. comp. strength 1D prism weight measur 2	MORTAR STRENGTH 1D	BALANCE	PHYSLAB	g	M
1S110-1	OWC strength 24 hour, 110 deg C measurem 1	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S110-2	OWC strength 24 hour, 110 deg C measurem 2	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S110-3	OWC strength 24 hour, 110 deg C measurem 3	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S110A	OWC strength 24 hour, 110 deg C average	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S143-1	OWC strength 24 hour, 143 deg C measurem. 1	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S143-2	OWC strength 24 hour, 143 deg C measurem.2	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S143-3	OWC strength 24 hour, 143 deg C measurem.3	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S143A	OWC strength 24 hour, 143 deg C average	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S160-1	OWC strength 24 hour, 160 deg C measurem. 1	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S160-2	OWC strength 24 hour, 160 deg C measurem.2	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S160-3	OWC strength 24 hour, 160 deg C measurem.3	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S160A	OWC strength 24 hour, 160 deg C average	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S38-1	OWC strength 24 hour, 38 deg C measurem. 1	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S38-2	OWC strength 24 hour, 38 deg C measurem. 2	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S38-3	OWC strength 24 hour, 38 deg C measurem. 3	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S38A	OWC strength 24 hour, 38 deg C average	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S77-1	OWC strength 24 hour, 77 deg C measurem. 1	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S77-2	OWC strength 24 hour, 77 deg C measurem. 2	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S77-3	OWC strength 24 hour, 77 deg C measurem. 3	OWC compressive strength	PRESS	PHYSLAB	MPa	M
1S77A	OWC strength 24 hour, 77 deg C average	OWC compressive strength	PRESS	PHYSLAB	MPa	M
21MSHA	mortar Shrinkage 21D Average (AS2350.13)	MORTAR SHRINKAGE 21D	LENGTH COMPARATOR	PHYSLAB	uStrain	M
26EXS1	length change mortar bar Na2SO4 26 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
26EXS2	length change mortar bar Na2SO4 26 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
26EXS3	length change mortar bar Na2SO4 26 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
26EXS4	length change mortar bar Na2SO4 26 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
26EXS5	length change mortar bar Na2SO4 26 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
26EXS6	length change mortar bar Na2SO4 26 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
26EXSA	length change mortar bar Na2SO4 26 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
28CCS1	concrete strength 28D measurement 1	CONCRETE STRENGTH 28D	CONCRETE PRESS	CONCLAB	MPa	M
28CCS2	concrete strength 28D measurement 2	CONCRETE STRENGTH 28D	CONCRETE PRESS	CONCLAB	MPa	M
28CCSA	concrete strength 28D	CONCRETE STRENGTH 28D	CONCRETE PRESS	PHYSLAB	MPa	M
28CS1	mortar compressive strength 28D measurem. 1	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CS2	mortar compressive strength 28D measurem. 2	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CS3	mortar compressive strength 28D measurem. 3	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CS4	mortar compressive strength 28D measurem. 4	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CS5	mortar compressive strength 28D measurem. 5	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CS6	mortar compressive strength 28D measurem. 6	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CSA	mortar compressive strength 28D average	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28CSHA	Concrete shrinkage 28D average	Concrete test	Concrete lab	Concrete lab	%	M
28CSS	mortar compr. strength 28D standard deviation	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28FS1	flexural strength 28D measurement 1	FLEXURAL STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28FS2	flexural strength 28D measurement 2	FLEXURAL STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28FS3	flexural strength 28D measurement 3	FLEXURAL STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28FSA	flexural strength 28D average	FLEXURAL STRENGTH 28D	PRESS	PHYSLAB	MPa	C
28FSS	flexural strength 28D standard deviation	FLEXURAL STRENGTH 28D	PRESS	PHYSLAB	MPa	C
28MSHA	mortar Shrinkage 28D Average (AS2350.13)	MORTAR SHRINKAGE 28D	LENGTH COMPARATOR	PHYSLAB	uStrain	M
28SAI1	mortar strength 28D Activity Sample 1	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28SAI2	mortar strength 28D Activity Sample 2	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28SAI3	mortar strength 28D Activity Sample 3	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28SAIA	mortar strength 28D Activity avg	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
28SAIS	mortar strength 28D Activity stdev	MORTAR STRENGTH 28D	PRESS	PHYSLAB	MPa	M
2CS1	mortar compressive strength 2D measurem. 1	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2CS2	mortar compressive strength 2D measurem. 2	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	C
2CS3	mortar compressive strength 2D measurem. 3	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	C
2CS4	mortar compressive strength 2D measurem. 4	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2CS5	mortar compressive strength 2D measurem. 5	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2CS6	mortar compressive strength 2D measurem. 6	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2CSA	mortar compressive strength 2D average	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2CSS	mortar compressive strength 2D std	MORTAR STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2EXS1	length change mortar bar Na2SO4 26 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
2EXS2	length change mortar bar Na2SO4 26 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
2EXS3	length change mortar bar Na2SO4 26 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
2EXS4	length change mortar bar Na2SO4 26 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
2EXS5	length change mortar bar Na2SO4 26 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
2EXS6	length change mortar bar Na2SO4 26 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
2EXSA	length change mortar bar Na2SO4 26 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
2FS1	flexural strength 2D measurement 1	FLEXURAL STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2FS2	flexural strength 2D measurement 2	FLEXURAL STRENGTH 2D	PRESS	PHYSLAB	MPa	M

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
2FS3	flexural strength 2D measurement 3	FLEXURAL STRENGTH 2D	PRESS	PHYSLAB	MPa	M
2FSA	flexural strength 2D average	FLEXURAL STRENGTH 2D	PRESS	PHYSLAB	MPa	C
2FSS	flexural strength 2D standard deviation	FLEXURAL STRENGTH 2D	PRESS	PHYSLAB	MPa	C
2MSRA	mortar Sulfate Resistance 2D Average (AS2350.14)	mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
30LC1	30days length change of cement mortar bar1	Alkali-aggregate activity	Length comparator	Physi lab	%	M
30LC2	30days length change of cement mortar bar2	Alkali-aggregate activity	Length comparator	Physi lab	%	M
30LC3	30days length change of cement mortar bar3	Alkali-aggregate activity	Length comparator	Physi lab	%	M
30LC4	30days length change of cement mortar bar4	Alkali-aggregate activity	Length comparator	Physi lab	%	M
30LC5	30days length change of cement mortar bar5	Alkali-aggregate activity	Length comparator	Physi lab	%	M
30LC6	30days length change of cement mortar bar6	Alkali-aggregate activity	Length comparator	Physi lab	%	M
30LCA	30days length change of cement mortar barA	Alkali-aggregate activity	Length comparator	Physi lab	%	M
365CSA	mortar compressive strength 365D average	MORTAR STRENGTH 365D	PRESS	PHYSLAB	MPa	M
37EXS1	length change mortar bar Na2SO4 37 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
37EXS2	length change mortar bar Na2SO4 37 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
37EXS3	length change mortar bar Na2SO4 37 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
37EXS4	length change mortar bar Na2SO4 37 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
37EXS5	length change mortar bar Na2SO4 37 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
37EXS6	length change mortar bar Na2SO4 37 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
37EXSA	length change mortar bar Na2SO4 37 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
3CCS1	concrete strength 3D measurement 1	CONCRETE STRENGTH 3D	CONCRETE PRESS	CONCLAB	MPa	M
3CCS2	concrete strength 3D measurement 2	CONCRETE STRENGTH 3D	CONCRETE PRESS	CONCLAB	MPa	M
3CCSA	concrete strength 3D	CONCRETE STRENGTH 3D	CONCRETE PRESS	PHYSLAB	MPa	M
3CS1	mortar compressive strength 3D measurem. 1	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	M
3CS2	mortar compressive strength 3D measurem. 2	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	C
3CS3	mortar compressive strength 3D measurem. 3	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	C
3CS4	mortar compressive strength 3D measurem. 4	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	M
3CS5	mortar compressive strength 3D measurem. 5	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	M
3CS6	mortar compressive strength 3D measurem. 6	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	M
3CSA	mortar compressive strength 3D average	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	M
3CSS	mortar compressive strength 3D standard deviation	MORTAR STRENGTH 3D	PRESS	PHYSLAB	MPa	M
3EXS1	length change mortar bar Na2SO4 3 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
3EXS2	length change mortar bar Na2SO4 3 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
3EXS3	length change mortar bar Na2SO4 3 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
3EXS4	length change mortar bar Na2SO4 3 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
3EXS5	length change mortar bar Na2SO4 3 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
3EXS6	length change mortar bar Na2SO4 3 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
3EXSA	length change mortar bar Na2SO4 3 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
3LC1	3days length change of cement mortar bar1	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
3LC2	3days length change of cement mortar bar2	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
3LC3	3days length change of cement mortar bar3	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
3LC4	3days length change of cement mortar bar4	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
3LC5	3days length change of cement mortar bar5	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
3LC6	3days length change of cement mortar bar7	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
3LCA	3days length change of cement mortar barA	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
4EXS1	length change mortar bar Na2SO4 4 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
4EXS2	length change mortar bar Na2SO4 4 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
4EXS3	length change mortar bar Na2SO4 4 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
4EXS4	length change mortar bar Na2SO4 4 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
4EXS5	length change mortar bar Na2SO4 4 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
4EXS6	length change mortar bar Na2SO4 4 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
4EXSA	length change mortar bar Na2SO4 4 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
4MSRA	mortar Sulfate Resistance 4D Average (AS2350.14)	mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
52EXS1	length change mortar bar Na2SO4 52 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
52EXS2	length change mortar bar Na2SO4 52 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
52EXS3	length change mortar bar Na2SO4 52 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
52EXS4	length change mortar bar Na2SO4 52 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
52EXS5	length change mortar bar Na2SO4 52 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
52EXS6	length change mortar bar Na2SO4 52 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
52EXSA	length change mortar bar Na2SO4 52 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
56CSA	mortar compressive strength 56D average	MORTAR STRENGTH 56D	PRESS	PHYSLAB	MPa	M
56EXPR	56 days exp. mortar bar alkali reactivity	SOUNDNESS (NMX-C-180)	LENGTH COMPARATOR	PHYSLAB	%	C
6MSRA	mortar Sulfate Resistance 6D Average (AS2350.14)	mortar sulfate resistance	LENGTH COMPARATOR	PHYSLAB	uStrain	M
7CCS1	concrete strength 7D measurement 1	CONCRETE STRENGTH 7D	CONCRETE PRESS	CONCLAB	MPa	M
7CCS2	concrete strength 7D measurement 2	CONCRETE STRENGTH 7D	CONCRETE PRESS	CONCLAB	MPa	M
7CCSA	concrete strength 7D	CONCRETE STRENGTH 7D	CONCRETE PRESS	PHYSLAB	MPa	M
7CS1	mortar compressive strength 7D measurem. 1	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	M
7CS2	mortar compressive strength 7D measurem. 2	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	C
7CS3	mortar compressive strength 7D measurem. 3	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	C
7CS4	mortar compressive strength 7D measurem. 4	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	M
7CS5	mortar compressive strength 7D measurem. 5	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	M
7CS6	mortar compressive strength 7D measurem. 6	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	M
7CSA	mortar compressive strength 7D average	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	M
7CSS	mortar compressive strength 7D std	MORTAR STRENGTH 7D	PRESS	PHYSLAB	MPa	M
7LC1	7days length change of cement mortar bar1	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
7LC2	7days length change of cement mortar bar2	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
7LC3	7days length change of cement mortar bar3	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
7LC4	7days length change of cement mortar bar4	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
7LC5	7days length change of cement mortar bar5	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
7LC6	7days length change of cement mortar bar7	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C
7LCA	7days length change of cement mortar barA	Alkali-aggregate reaction	Length comparator	Concrete lab	%	C

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
7MSHA	mortar Shrinkage 7D Average (AS2350.13)	MORTAR SHRINKAGE 7D	LENGTH COMPARATOR	PHYSLAB	uStrain	M
8EXS1	length change mortar bar Na2SO4 8 week, bar 1	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
8EXS2	length change mortar bar Na2SO4 8 week, bar 2	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
8EXS3	length change mortar bar Na2SO4 8 week, bar 3	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
8EXS4	length change mortar bar Na2SO4 8 week, bar 4	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
8EXS5	length change mortar bar Na2SO4 8 week, bar 5	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
8EXS6	length change mortar bar Na2SO4 8 week, bar 6	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	M
8EXSA	length change mortar bar Na2SO4 8 week, avg	SOUNDNESS (NMX-C-418)	LENGTH COMPARATOR	PHYSLAB	in	C
8MSRA	mortar Sulfate Res. 8D Average (AS2350.14)	mortar Sulfate Res	LENGTH COMPARATOR	PHYSLAB	uStrain	M
8S110-1	OWC strength 8 hour, 110 deg C measurem. 1	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S110-2	OWC strength 8 hour, 110 deg C measurem. 2	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S110-3	OWC strength 8 hour, 110 deg C measurem. 3	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S110A	OWC strength 8 hour, 110 deg C average	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S143-1	OWC strength 8 hour, 143 deg C measurem. 1	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S143-2	OWC strength 8 hour, 143 deg C measurem. 2	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S143-3	OWC strength 8 hour, 143 deg C measurem. 3	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S143A	OWC strength 8 hour, 143 deg C average	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S160-1	OWC strength 8 hour, 160 deg C measurem. 1	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S160-2	OWC strength 8 hour, 160 deg C measurem. 2	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S160-3	OWC strength 8 hour, 160 deg C measurem. 3	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S160A	OWC strength 8 hour, 160 deg C average	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S38-1	OWC strength 8 hour, 38 deg C measurement 1	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S38-2	OWC strength 8 hour, 38 deg C measurement 2	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S38-3	OWC strength 8 hour, 38 deg C measurement 3	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S38A	OWC strength 8 hour, 38 deg C average	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S60-1	OWC strength 8 hour, 60 deg C measurement 1	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S60-2	OWC strength 8 hour, 60 deg C measurement 2	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S60-3	OWC strength 8 hour, 60 deg C measurement 3	OWC comp strength	PRESS	PHYSLAB	MPa	M
8S60A	OWC strength 8 hour, 60 deg C average	OWC comp strength	PRESS	PHYSLAB	MPa	M
9OCCSA	concrete strength 90D	CONCRETE STRENGTH 90D	CONCRETE PRESS	PHYSLAB	MPa	M
9OCSA	mortar compressive strength 90D average	MORTAR STRENGTH 90D	PRESS	PHYSLAB	MPa	M
9OLC1	90days lenth change of cement mortar bar1	Alkali-aggregate activity	Length comparator	Physi lab	%	M
9OLC2	90days lenth change of cement mortar bar2	Alkali-aggregate activity	Length comparator	Physi lab	%	M
9OLC3	90days lenth change of cement mortar bar3	Alkali-aggregate activity	Length comparator	Physi lab	%	M
9OLC4	90days lenth change of cement mortar bar4	Alkali-aggregate activity	Length comparator	Physi lab	%	M
9OLC5	90days lenth change of cement mortar bar5	Alkali-aggregate activity	Length comparator	Physi lab	%	M
9OLC6	90days lenth change of cement mortar bar6	Alkali-aggregate activity	Length comparator	Physi lab	%	M
9OLCA	90days lenth change of cement mortar barA	Alkali-aggregate activity	Length comparator	Physi lab	%	M
ABSRAD	absence of radioactivity	ABSENCE OF RADIOACTIVITY	EXTLAB	CHEMLAB	0/1	M
ACRONI	acro nitriles	NITRILES	GAS-CHROMATOGRAPH	CHEMLAB	mg/kg	M
ADL	air dried loss	AIR-DRY MOISTURE LOSS	AIR DRYING OVEN	CHEMLAB	%	M
AG	silver	HEAVY METALS	AAS	EXTLAB	mg/kg	M
AIR	air content mortar	AIR CONTENT MORTAR	AIR ENTRAINMENT METER	PHYSLAB	%	M
AIRCON	air content in concrete	CONCRETE TESTING	AIR METER	CONCLAB	%	M
AL2O3	alumina oxide	XRF	XRF	XRFLAB	%	A
AL2O3G	aluminium oxide gravimetric	GRAVIMETRIC AL2O3	GRAVIMETRY	CHEMLAB	%	M
ALITBQ	ono method alite birefringence qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
ALITEB	ono method alite birefringence	CLINKER MICROSCOPY	MICROSCOPE	CHEMLAB	ratio	M
ALITEL	ono method alite size	CLINKER MICROSCOPY	MICROSCOPE	CHEMLAB	µm	M
ALITELP	polished section method alite size	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	µm	M
ALITEM	polished section method alite morphology	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
ALITLQ	ono method alite size qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
ALITMR	polished section method alite morphology	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
ALK	Alkalinity as CaCO3	WATER	EXTLAB	CHEMLAB	mg/l	
ALKSO3	alkali sulfur ratio	XRF	XRF	XRFLAB	ratio	C
ALKSUL	polished section method alkaline sulphates	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
ALUTYP	polished section aluminate type	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
AOX	compl. organic halogenes abs. in active coal	VOC	EXTLAB	AFRLAB	µg/l	M
AR	aluminum ratio	XRF	XRF	XRFLAB	ratio	C
AS	arsenic	HEAVY METALS	AAS	EXTLAB	mg/kg	M
ASH	ash conent	PROXIMATE	FURNACE	CHEMLAB	%	M
ASTAR	a*	COLOUR	COLOURMETER	SHIFTLAB	ratio	M
B	boron	HEAVY METALS	AAS	EXTLAB	mg/kg	M
BA	barium	HEAVY METALS	AAS	EXTLAB	mg/kg	M
BAGWT	weight of cement bag	BAGWEIGHT	BALANCE	PREPLAB	kg	M
BAO	Barium oxide	XRF	XRF	XRFLAB	%	A
BE	beryllium	HEAVY METALS	AAS	EXTLAB	mg/kg	C
BELCLO	polished section method belite cloister	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BELCLS	polished section method belite cloister size	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	µm	M
BELICQ	ono method belite colour qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BELILQ	ono method belite size qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BELITC	ono method belite colour	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	NA	M
BELITD	polished section method dispersed belite	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BELITL	ono method belite size	CLINKER MICROSCOPY	MICROSCOPE	CHEMLAB	µm	M
BELITLP	polished section method belite size	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	µm	M
BELITM	polished section method belite morphology	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BELITT	polished section belite type	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BI	Burnability Index	XRF	XRF	XRFLAB	ratio	C
BLAINA	blaine automatic	BLAINE AUTO	BLAINE AUTO	SHIFTLAB	cm²/g	M
BLAINC	blaine manual Coefficient of Variation (%)	BLAINE	BLAINE	SHIFTLAB	%	M
BLAINE	blaine manual	BLAINE	BLAINE	SHIFTLAB	cm²/g	M
BLAING	blaine derived from particle size distribution	SIEVING GRANULOMETER	GRANULOMETER	PHYSLAB	%	A
BLAINS	blaine manual standard deviation	BLAINE	BLAINE	SHIFTLAB	cm²/g	M
BLEED	Concrete Bleed	CONCRETE TESTING	CONCRETE LAB	CONCLAB		M

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
BR	bromine total	HALOGENS	IC	EXTLAB	mg/kg	M
BSTAR	b*	COLOUR	COLOURMETER	SHIFTLAB	ratio	M
BTX	benzene, toluène, xylène	VOC	EXTLAB	AFRLAB	µg/l	M
BURTIM	ono method burning time	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
BZC	benzene emission (Compound operation)	Stack emissions	EXTLAB	AFRLAB	mg/Nm3	M
BZD	benzene emission (Direct operation)	Stack emissions	EXTLAB	AFRLAB	mg/Nm3	M
C	carbon	CARBON	LECO	CHEMLAB	%	M
C2S	belite	XRF	XRF	XRFLAB	%	C
C3A	aluminat	XRF	XRF	XRFLAB	%	C
C3S	alite	XRF	XRF	XRFLAB	%	C
C3SC	alite FL corrected	XRF	XRF	XRFLAB	%	C
C4AF	ferrite	XRF	XRF	XRFLAB	%	C
CA	Calcium	WATER	EXTLAB	CHEMLAB	mg/l	
CACO3T	carbonate titration	TITRATION CARBONATE	TITRATION	CHEMLAB	%	M
CAF2	Calcium Fluoride	CAF MINERALIZERS	GRAVIMETRY	CHEMLAB	%	C
CAF2P	Calcium Fluoride potentiometric	Calcium Fluoride potentiometric	POTENTIOMETER	CHEMLAB	%	M
CAFCL0	polished section method free lime cloister	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
CAFCLS	polished section method free lime cloister size	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	µm	M
CALCLS	polished section method calcite cloister size	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	µm	M
CALCP	Percent Calcination	Percent Calcination hot meal	FURNACE	CHEMLAB	%	C
CANNIB	polished section cannibalism	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
CAO	calcium oxide	XRF	XRF	XRFLAB	%	A
CAOF	free lime	FREELIME	FREELIME	SHIFTLAB	%	A
CAOFA	free lime automatic	FREELIME AUTO	FREELIME AUTO	SHIFTLAB	%	A
CAOFC	free lime conductometric	FREELIME COND	CONDUCTOMETER	SHIFTLAB	%	M
CAOFT	free lime titration	FREELIME WET	TITRATION	CHEMLAB	%	M
CAOFX	free lime XRD	FREELIME XRD	XRD	XRFLAB	%	M
CAOG	calcium oxide gravimetric	GRAVIMETRIC CAO	GRAVIMETRY	CHEMLAB	%	M
CASO4	calcium sulfate anhydrite	XRF	XRF	XRFLAB	%	C
CASO4D	calcium sulfate di-hydrate	XRF	XRF	XRFLAB	%	C
CASO4H	calcium sulfate hemi-hydrate	XRF	XRF	XRFLAB	%	C
CASO4S	calcium sulfate semi-hydrate	XRF	XRF	XRFLAB	%	C
CD	cadmium	HEAVY METALS	AAS	EXTLAB	mg/kg	M
CEMDES	Cement used for concrete design	Cement for concrete design	BALANCE	CONCLAB	kg/m³	M
CEMOIST	Chemical Water content in Gypsum	LOI	FURNACE	CHEMLAB	%	C
CL	chlorine	XRF	XRF	XRFLAB	%	A
CLAY	clay content	METHYLENE BLUE TEST	TITRATION	CHEMLAB	%	M
CLAYLU	Clay lump	Clay lump content in content	Seive	Physi lab	%	M
CLIP	chlorine by indicator paper	CHLORINE INDICATOR PAPER	INDICATOR PAPER	CHEMLAB	%	M
CLIQUA	ono method clinker qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	%	C
CLPOT	chlorine potentiometric	POTENTIOMETRIC CHLORINE	POTENTIOMETER	CHEMLAB	%	M
CLTIT	chlorine titration	TITRATION CHLORINE	TITRATION	CHEMLAB	%	M
CMS	(CaO+MgO)/SiO2	XRF	XRF	XRFLAB	ratio	A
CN	cyanide	WATER	EXTLAB	CHEMLAB	mg/l	M
CO	cobalt	HEAVY METALS	AAS	EXTLAB	mg/kg	C
COLI37	colibacillus feces at 37°C	WATER	EXTLAB	CHEMLAB	1/100ml	M
COLI44	colibacillus feces at 44°C	WATER	EXTLAB	CHEMLAB	1/100ml	M
COND	Conductivity	WATER	EXTLAB	CHEMLAB	uS/cm	
CONS	consistency	NORMAL CONSISTENCE	VICAT	PHYSLAB	mm	M
CONS1	consistency measurement 1	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS10	consistency measurement 10	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS11	consistency measurement 11	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS12	consistency measurement 12	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS2	consistency measurement 2	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS3	consistency measurement 3	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS4	consistency measurement 4	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS5	consistency measurement 5	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS6	consistency measurement 6	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS7	consistency measurement 7	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS8	consistency measurement 8	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
CONS9	consistency measurement 9	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	Bc	C
COOVEL	ono method cooling velocity	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
CORROS	polished section corrosion	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
CR	cromium	HEAVY METALS	AAS	EXTLAB	mg/kg	A
CR2O3	cromium oxide	XRF	XRF	XRFLAB	%	A
CR6	chromate	CHROMAT	UV SPECTROMETER	CHEMLAB	mg/kg	M
CRUSHV	Crushed stone value	Crushed stone value	Presss	Physi lab	ratio	M
CS	calium silica ratio	XRF	XRF	XRFLAB	ratio	C
CU	copper	HEAVY METALS	AAS	EXTLAB	mg/kg	A
CUO	Copper oxide	XRF	XRF	XRFLAB	%	A
CVG	calorific value gross	CALORIMETRY	CALORIMETER	CHEMLAB	MJ/t	M
CVN	calorific value net	CALORIMETRY	CALORIMETER	CHEMLAB	MJ/t	C
D50	grain-size at 50% passing	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
DA.T	Dust Ambient Air Total AS/NZS 3580.9.3	Boundary monitoring	CHEMICAL	AFRLAB	mg/m2/d	M
DAPM10	Dust Ambient Air PM10 AS/NZS 3580.9.3	Boundary monitoring	CHEMICAL	AFRLAB	µg/m2/d	M
DE.T	Dust emission Total	Stack emissions	EXTLAB	AFRLAB	mg/Nm3	M
DEFINI	initial deformation temperature (ASTM D1857-87)	Fusability of coal and coke ash	Furnace	EXTLAB	oC	M
DENS	density	DENSITY	PYCNOMETER	PHYSLAB	g/l	M
DENBSU	density bulk	DENSITY BULK	CYLINDER	PHYSLAB	g/l - kg/m3	M

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M I/C*
DENSC	Compact density	Density testing	Weight	Physi lab	kg/m3	M
DENSL	Loose density	Density testing	Weight	Physi lab	kg/m3	M
DEPM10	Dust emission PM10	Stack emissions	EXTLAB	AFRLAB	mg/Nm3	M
DETAI	anionic detergents (sodium laurylsulfate)	WATER	EXTLAB	CHEMLAB	mg/l	M
DETCI	cationic detergents	WATER	EXTLAB	CHEMLAB	mg/l	M
DETNI	non ionic detergents	WATER	EXTLAB	CHEMLAB	mg/l	M
DF	Dust Fallout deposit rate AS/NZS 3580.10.1	Boundary monitoring	CHEMICAL	AFRLAB	mg/m2/d	M
DIAM	diameter	WASTE FUELS	EXTERNAL LAB	EXTLAB	mm	M
DRYRES	dry residue by distillation	DRY RESIDUE DISTILLATION	DISTILLATION APPARATUS	CHEMLAB	%	M
ELAST	Mobile elasticity modulus	Concrete relative enduring test	Concrete lab	Concrete lab	Mpa	C
EXP	exp. of mortar bar stored in water (ASTM C 1038)	SOUNDNESS	LENGTH COMPARATOR	PHYSLAB	%	M
EXPA	expansion autoclave	SOUNDNESS AUTOCLAVE	AUTOCLAVE	PHYSLAB	%	M
EXPAF	length dif. mortar bar autoclave exp final	Soundn. autoclave (NMX-C-062)	AUTOCLAVE	PHYSLAB	in	M
EXPAI	length dif. mortar bar autoclave exp initial	Soundn. autoclave (NMX-C-062)	AUTOCLAVE	PHYSLAB	in	M
EXPC	expansion le chatelier	SOUNDNESS LECHATelier	LECHATelier	PHYSLAB	mm	M
EXPCK	Circle and expansion change	Soundness	Boiler	Physical lab		
EXPF	length dif. mortar bar in water, final (ASTM C 1038)	SOUNDNESS (NMX-C-185)	LENGTH COMPARATOR	PHYSLAB	in	M
EXPI	length dif. mortar bar in water, initial (ASTM C 1038)	SOUNDNESS (NMX-C-185)	LENGTH COMPARATOR	PHYSLAB	in	M
F	fluorine	HALOGENS	IC	EXTLAB	mg/kg	M
F0.5-1	fraction passing 1.00 mm retained on 0.5 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F11-23	fraction passing 22.5 mm retained on 11.2 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F1-2	fraction passing 2.00 mm retained on 1.0 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F1-30MM	fraction passing 30 mm retained on 1 mm	CLINKER PSD	SCREEN	PREPLAB	%	M
F23-32	fraction passing 31.5 mm retained on 22.5 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F2-4.7	fraction passing 4.75 mm retained on 2.0 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F32-50	fraction passing 50 mm retained on 31.5 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F4.7-6	fraction passing 6.3 mm retained on 4.75 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
F6-11	fraction passing 11.2 mm retained on 6.3 mm	SIEVING DRY	SIEVESHAKE	EXTLAB	%	M
FAT	fat content	FAT CONTENT	EXTLAB	CHEMLAB	%	M
FE	iron	HEAVY METALS	AAS	EXTLAB	mg/kg	M
FE2O3	iron oxide	XRF	XRF	XRFLAB	%	A
FERREF	polished section ferrite reflectivity	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
FFLOW	fluid temperature (ASTM D1857-87)	Fusability of coal and coke ash	FURNACE	EXTLAB	oC	M
FFLUID	free fluid content OWC - free water	FREE FLUID CONTENT OWC	FLASK	PHYSLAB	%, mL	M
FINEMD	Fineness module	Fineness module	Concrete lab	Concrete lab		Ratio
FIXEDC	fixed carbon	PROXIMATE	FURNACE	CHEMLAB	%	C
FLASHP	flash point	FLASHPOINT	FLASHPOINT TESTER	CHEMLAB	°C	M
FLTOIL	surface oil	WATER	EXTLAB	CHEMLAB	mg/l	M
FLYASC	Fly ash content	MIC content in cement	Titrat	Chemical lab	%	M
FPOT	fluorine potentiometric	POTENTIOMETRIC FLUORINE	POTENTIOMETER	CHEMLAB	%	M
GERM22	total germes airobe at 22°C	WATER	EXTLAB	CHEMLAB	1/ml	M
GERM37	total germes airobe at 37°C	WATER	EXTLAB	CHEMLAB	1/ml	M
GLASS	glass content in slag	XRD	XRD	XRFLAB	%	M
GRADES	Gravel used for concrete design	Gravel used for concrete design	BALANCE	CONCLAB	kg/m³	M
GRIND	grindability	GRINDABILITY	LABORATORY BALL MILL	PHYSLAB	kWh/t	M
GRININ	ono method Grindability Index	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	cm²/g	C
GRINIQ	ono method Grindability Index qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	cm²/g	C
GYPS	% gypsum in cement	XRF	XRF	XRFLAB	%	A
H	hydrogen	ULTIMATE ANALYSIS	LECO	CHEMLAB	%	M
H2O	water content	IN LIQUID FUELS	KARL FISCHER	CHEMLAB	%	M
H2OC	crystal water (moist cont. at 400°C) in gypsum	IN LIQUID FUELS	KARL FISCHER	CHEMLAB	%	M
HARD	Hardness	WATER	EXTLAB	CHEMLAB	mg/l	
HCCCL4	hydrocarbonates extractable with CCl ₄	WATER	EXTLAB	CHEMLAB	mg/l	M
HEA28D	heat of hydration 28 days	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HEAT12	heat of hydration 12 hours	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HEAT24	heat of hydration 24 hours	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HEAT7D	heat of hydration 7 days	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HEAVEL	ono method heating velocity	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
HEMISP	hemispherical temperature (ASTM D1857-87)	Fusability of coal and coke ash	Furnace	EXTLAB	oC	M
HETERO	Heterotrophic Plate Count	WATER	EXTLAB	CHEMLAB	CFU	M
HG	mercury	HEAVY METALS	AAS	EXTLAB	mg/kg	M
HGC	Mercury (Compound operation)	Stack emissions	AAS	EXTLAB	mg/Nm3	M
HGD	Mercury (Direct operation)	Stack emissions	AAS	EXTLAB	mg/Nm3	M
HGRIND	hardgrove grindability index	hardgrove grindability index	HARDGROVE GRINDABILITY T	EXTLAB	ratio	M
HGS	limestone content calculated from carbon	LOI	LECO	CHEMLAB	%	C
HOH12	heat of hydration 12 hours (LANGAVANT)	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HOH120	heat of hydration 120 hours (LANGAVANT)	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HOH24	heat of hydration 24 hours (LANGAVANT)	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HOH72	heat of hydration 72 hours (LANGAVANT)	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g	M
HOHEXA	heat of hydration max age (LANGAVANT)	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	hrs	M
HOHEXR	heat of hydration max rate (LANGAVANT)	HEAT OF HYDRATION	CALORIMETER	PHYSLAB	J/g/h	M
HOHMT	heat of hydration max temp. rise (AS2350.7)	TEMPERATURE RISE	CALORIMETER	PHYSLAB	hrs	M
HOHMTT	heat of hydration max temp. time (AS2350.7)	TEMPERATURE RISE	CALORIMETER	PHYSLAB	°C	M
HOMOG	ono method homogeneity	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
HUM	air humidity	HUMIDITY	HYGROMETER	PHYSLAB	%	M
I	iodine	HALOGENS	IC	EXTLAB	mg/kg	C
IH	Hidraulic index for slag	SLAG HIDRAULIC ACTIVITY	XRF	XRFLAB	%	C

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
IM	Alumina Ratio	XRF	XRF	XRF analysis lab	ratio	C
INCLUS	polished section inclusion	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
INTERS	Interspace ratio	Interspace ratio	Concrete lab	Concrete lab	%	C
IR	insoluble residue	INSOLUBLE RESIDUE	GRAVIMETRY	CHEMLAB	%	M
K	Potassium	WATER	EXTLAB	CHEMLAB	mg/l	
K2O	potassium oxide	XRF	XRF	XRFLAB	%	A
K2OI	potassium oxide by ICP	MINOR ELEMENTS	ICP	CHEMLAB	%	A
K2OP	potassium oxide photometric	PHOTOMETRIC K2O	FLAME PHOTOMETER / AAS	XRFLAB	%	M
KH	Lime saturation	XRF	XRF	XRFLAB	ratio	C
LEGION	Legionella Count	WATER	EXTLAB	CHEMLAB	CFU	M
LIGHTC	light material content	Density bulk <2000kg/m3	Concrete lab	Concrete lab	%	C
LIMEST	limestone content from feeder	WEIGH FEEDER READINGS	OPERATOR	SHIFTLAB	%	M
LITREW	litre weight	LITREWEIGHT	SCREEN CYLINDER	SHIFTLAB	g/l	M
LOI	loss on ignition	LOI	FURNACE	CHEMLAB	%	M
LP,P	polished section method liquid phase	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
LP1338	liquid phase 1338 deg C	XRF	XRF	XRFLAB	%	C
LP1400	liquid phase 1400 deg C	XRF	XRF	XRFLAB	%	C
LP1450	liquid phase 1450 deg C	XRF	XRF	XRFLAB	%	C
LPQ	polished section method liquid phase quantity	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
LSF	Lime saturation	XRF	XRF	XRFLAB	ratio	C
LSTAR	L*	COLOUR	COLOURMETER	SHIFTLAB	ratio	M
MAC	minor additional constituents	WEIGH FEEDER READINGS	OPERATOR	SHIFTLAB	%	M
MAD	Moisture of dried basis	Water content of coal	Oven	Chemical lab	%	M
MAXTEM	ono method maximum temperature	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
MG	Magnesium	WATER	EXTLAB	CHEMLAB	mg/l	
MGCO3	magnesium carbonate	XRF	XRF	XRFLAB	%	C
MGO	magnesium oxide	XRF	XRF	XRFLAB	%	A
MGOG	magnesium oxide gravimetric	GRAVIMETRIC MGO	GRAVIMETRY	CHEMLAB	%	M
MICAC	Mica content	Mica content	Concrete lab	Concrete lab	%	C
MINOIL	mineral oil	WATER	EXTLAB	CHEMLAB	ug/l	M
MN	manganese	HEAVY METALS	AAS	EXTLAB	mg/kg	M
MN2O3	manganese oxide	XRF	XRF	XRFLAB	%	A
MN2O5	Manganese pentoxide	XRF	XRF	XRFLAB	%	A
MNO	Manganese oxide	XRF	XRF	XRFLAB	%	A
MOIST	moisture	MOISTURE	OVEN	CHEMLAB	%	M
MOIST4	moisture measured at 40°C	MOISTURE	OVEN	CHEMLAB	%	M
MOIST5	moisture measured at 50°C	MOISTURE	OVEN	CHEMLAB	%	M
MOISTA	moisture in analysed	MOISTURE IN ANALYSED	OVEN	CHEMLAB	%	M
MOO3	Molybdenum oxide	XRF	XRF	XRFLAB	%	A
N	nitrogen	WATER	EXTLAB	CHEMLAB	mg/l	M
NA	sodium	WATER	EXTLAB	CHEMLAB	mg/l	M
NA2O	sodium oxide	XRF	XRF	XRFLAB	%	A
NA2OEP	sodium equivalent photometric	PHOTOMETRIC NA2O EQUIV	FLAME PHOTOMETER / AAS	XRFLAB	%	A
NA2OEQ	sodium equivalent	XRF	XRF	XRFLAB	%	A
NA2OP	sodium oxide photometric	PHOTOMETRIC NA2O	FLAME PHOTOMETER / AAS	XRFLAB	%	A
NA2SO4	Sodium sulfate content	Sodium sulfate	Titrat	Chemical lab	%	M
NEEDLE	Needle shape content	in aggregate	Balance	Physi lab	%	M
NI	nickel	HEAVY METALS	AAS	EXTLAB	mg/kg	M
NIO	Nickel oxide	XRF	XRF	XRFLAB	%	A
NITRIL	nitrides	NITRILES	GAS-CHROMATOGRAPH	CHEMLAB	mg/kg	M
NKJED	nitrogen kjeldhal	WATER	EXTLAB	CHEMLAB	mg/l	M
NNITRA	nitrogen as nitrate	WATER	EXTLAB	CHEMLAB	mg/l	M
NNITRI	nitrogen as nitrite	WATER	EXTLAB	CHEMLAB	mg/l	M
ODISSO	dissolved oxygen	WATER	EXTLAB	CHEMLAB	mg/l	M
ORGANC	organica compound content	organica compound content	Concrete lab	Concrete lab		
P	Phosphorus	WATER	EXTLAB	CHEMLAB	mg/l	
P0.1UM	passing 0.1 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P0.2UM	passing 0.2 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P0.4UM	passing 0.4 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P0.6UM	passing 0.6 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P0.8UM	passing 0.8 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P1.0UM	passing 1.0 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P1.5UM	passing 1.5 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P128.0UM	passing 128 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P16.0UM	passing 16 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P192.0UM	passing 192 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P2.0UM	passing 2 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P200.0UM	passing 200 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P212.0UM	passing 212 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P24.0UM	passing 24 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P2O5	phosphorus oxide	XRF	XRF	XRFLAB	%	A
P3.0UM	passing 3 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P3.35MM	passing 3.35 mm (No. 6)	SIEVING COLUMN	SIEVESHAKER	PREPLAB	%	M
P32.0UM	passing 32 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P4.0UM	passing 4 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P45.0UM	passing 45 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P48.0UM	passing 48 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P50MM	passing 50 mm sieve	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
P6.0UM	passing 46 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P64.0UM	passing 64 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P8.0UM	passing 8 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P90	passing 90 micro m sieve	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
P90.0UM	passing 90 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
P96.0UM	passing 96 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
PACK	pack set index	PACK SET	PACK SET APPARATUS	PHYSLAB	ratio	M
PAH	polycyclic aromatic hydrocarbon	VOC	EXTLAB	AFRLAB	µg/l	M
PB	lead	HEAVY METALS	AAS	EXTLAB	mg/kg	M
PBO	Lead oxide	XRF	XRF	XRFLAB	%	A
PCB	poly chlorinated biphenyl	PCB	CHROMATOGRAPH	EXTLAB	mg/kg	M
PERICL	polished section method periclas	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
PH	pH	ACIDITY	PH-METER	SHIFTLAB	ratio	M
POTSTQ	ono method Potential Strength qualification	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	kg/cm2	C
POTSTR	ono method Potential Strength	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	kg/cm2	C
PROPBE	propylbenzene	WATER	EXTLAB	CHEMLAB	mg/l	M
PV	plastic viscosity	RHEOLOGY	VISCOMETER	PHYSLAB	cp	C
PYRENE	pyrene	WATER	EXTLAB	CHEMLAB	mg/l	M
QUACLO	polished section method quartz cloister	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
QULOSS	Quantity loss after being dipped in sulphate liquor	Aggregate obdurability test	Concrete lab	Concrete lab	%	C
R1.17MM	residue 1.17 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R1.18MM	residue 1.18 mm (No. 16)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R1000	residue 1000 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R100MM	residue 100 mm (4 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R10MM	residue 10 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	C
R12.5MM	residue 12.5 mm (1/2 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R12.7MM	residue 12.7 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R125	residue 125 micro m (No. 120)	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R13.2MM	residue 13.2 mm (1/2 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R150	residue 150 micro m (No. 100)	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R150MM	residue 150 mm (6 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R160	residue 160 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R1600	residue 1600 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R16MM	residue 16 mm (5/8 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R19.1MM	residue 19.1 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R19MM	residue 19 mm (3/4 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R1MM	residue 1.0 mm	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R2.36MM	residue 2.36 mm (No. 8)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R200	residue 200 micro m	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R200.W	residue 200 micro m wet sieving	SIEVING WET	WET SIEVE	SHIFTLAB	%	M
R2000	residue 2000 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R200G	residue 200 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
R200MM	residue 200 mm (8 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R212.W	residue 212 micro m wet sieving	SIEVING WET	WET SIEVE	SHIFTLAB	%	M
R25.4MM	residue 25.4 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R250	residue 250 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R25MM	residue 25 mm (1 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R26.5MM	residue 26.5 mm (1.06 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R2MM	residue 2.0 mm	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R3.35MM	residue 3.35 mm (No. 6)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R300	residue 300 micro m (No. 50)	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R31.2MM	residue 31.2 mm (1.25 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R3-32	residue 3 to 32 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
R37.5MM	residue 37.5 mm (1.5 inches)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R38.1MM	residue 38.1 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R4.75MM	residue 4.75 mm (No. 4)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R425	residue 425 micro m (No. 40)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R45	residue 45 micro m	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R45.W	residue 45 micro m wet sieving	SIEVING WET	WET SIEVE	SHIFTLAB	%	M
R4MM	residue 4.0 mm	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R500	residue 500 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R50MM	residue 50 mm	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R53MM	residue 53 mm (2.12 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R6.3MM	residue 6.3 mm (1/4 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R6.7MM	residue 6.7 mm (1/4 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R600	residue 600 micro m (No. 30)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R63	residue 63 micro m	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R63MM	residue 63 mm (2.5 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R710	residue 710 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R75	residue 75 micro m	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R75MM	residue 75 mm (3 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R75MM	residue 75 mm (3 inches)	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R80	residue 80 micro m	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R850	residue 825 micro m (No. 20)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R9.5MM	residue 9.5 mm (3/8 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R9.5MM	residue 9.5 mm (3/8 inch)	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
R90	residue 90 micro m	SIEVING AIRJET	ALPINE	SHIFTLAB	%	M
R90.W	residue 90 micro m wet sieving	SIEVING WET	WET SIEVE	SHIFTLAB	%	M
R90G	residue 90 micro m granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
R90MMD1	residue >90 mm in 1 dimension	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
R90MMD2	residue >90 mm in 2 dimension	SIEVING DRY	DRY SIEVE	PREPLAB	%	M
RADACT	radioactivity	RADIOACTIVITY	GEIGERTUBE	EXTLAB	Bq	M
RB20	Rubidium oxide	XRF	XRF	XRFLAB	%	A
REDCOC	clinker reducing condition by colorimetry	COLOUR	COLORIMETER	CHEMLAB	nu	M
REDCON	polished section method reducing condition	CLINKER MICROSCOPY	MICROSCOPE	MICLAB	nu	M
REMOIST	residual moisture	PROXIMATE	FURNACE	CHEMLAB	%	M
RES	Residue after passing all sieves	SIEVING COLUMN	SIEVESHAKE	PREPLAB	%	M
RESIST	resistivity	WATER	EXTLAB	CHEMLAB	ohms*cm	M
RHE100	rheology at 100 RPM	RHEOLOGY	VISCOMETER	PHYSLAB	deg (inst)	M
RHE200	rheology at 200 RPM	RHEOLOGY	VISCOMETER	PHYSLAB	deg (inst)	M

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
RHE3	rheology at 3 RPM	RHEOLOGY	VISCOMETER	PHYSLAB	deg (inst)	M
RHE300	rheology at 300 RPM	RHEOLOGY	VISCOMETER	PHYSLAB	deg (inst)	M
RRC1	PSDRosinRamlerCoeF1 granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
RRC2	PSDRosinRamlerCoeF2 granulometer	PARTICLE SIZE ANALYSIS	GRANULOMETER	PHYSLAB	%	A
RSUGAR	Reductive sugar content	Reductive sugar content	Titration	Chemical lab	%	M
RUSTY	Reinforcing rusty test	Concrete test	Concrete lab	Concrete lab		
S	sulfur total	EX CALORIMETER SULFUR	TITRATION	CHEMLAB	%	M
S.T	sulfur total	ULTIMATE ANALYSIS	LECO	CHEMLAB	%	M
SAI	strength activity index	POZZOLANIC ACTIVITY	PRESS	PHYSLAB	%	A
SALMON	salmonella	WATER	EXTLAB	CHEMLAB	1/25ml	M
SANDES	Sand used for concrete design	SAND FOR CONCRETE DESIGN	BALANCE	CONCLAB	kg/m³	M
SB	antimony	HEAVY METALS	AAS	EXTLAB	mg/kg	M
SE	selenium	HEAVY METALS	AAS	EXTLAB	mg/kg	M
SED	sediments	SEDIMENTS	CENTRIFUGE	CHEMLAB	mg/kg	M
SETFAL	setting false	SETTING FALSE	VICAT	PHYSLAB	mm	M
SETFIN	setting time final	SETTING	VICAT	PHYSLAB	min	M
SETFNA	setting time final automatic	SETTING AUTO	VICAT AUTO	PHYSLAB	min	M
SETINA	setting time initial automatic	SETTING AUTO	VICAT AUTO	PHYSLAB	min	M
SETINI	setting time initial	SETTING	VICAT	PHYSLAB	min	M
SFTENS	Surface tension	Surface tension	Auto interface tension apparatus	Concrete lab	mN/m	C
SG	specific gravity	SPECIFIC GRAVITY	CYLINDER	PHYSLAB	ratio	C
SINAPT	Sinter Aptitude	CLINKER CONTROL	XRF	XRFLAB	°C	C
SINTEM	Sinter Temperature	CLINKER CONTROL	XRF	XRFLAB	°C	C
SIO2	silica oxide	XRF	XRF	XRFLAB	%	A
SIO2G	silica oxide gravimetric	GRAVIMETRIC SIO2	GRAVIMETRY	CHEMLAB	%	M
SL3MIN	Slaking Temperature @ at 3 mins	LIME QUALITY CONTROL	Thermometer	CHEMLAB	°C	M
SLAGC	Slag content	MIC content in cement	Titration	Chemical lab	%	M
SLUMP	slump	CONCRETE TESTING	CONCRETE LAB	CONCLAB	mm	M
SM	Silica Ratio	XRF	XRF	XRFLAB	ratio	C
SN	tin	HEAVY METALS	AAS	EXTLAB	mg/kg	M
SO3	sulfur oxide	XRF	XRF	XRFLAB	%	A
SO3E	Colophony exchange method	Colophony exchange SO3	Titration	Chemical lab	%	M
SO3G	sulfur oxide gravimetric	GRAVIMETRIC SO3	GRAVIMETRY	CHEMLAB	%	M
SO3TIT	SO3 Titration	Titration	Titration	Chemical lab	%	M
SO3VOL	SO3 Volatility	CLINKER CONTROL	XRF	XRFLAB	ratio	C
SO4	sulphates	WATER	EXTLAB	CHEMLAB	mg/l	M
SOLID	solid residue in liquids	SOLID RESIDUES	CENTRIFUGE	CHEMLAB	%	M
SPHER	softening temperature (ASTM D1857-87)	Fusability of coal and coke ash	Furnace	EXTLAB	°C	M
SR	silica ratio	XRF	XRF	XRFLAB	ratio	C
SR MGL	strontium	WATER	EXTLAB	CHEMLAB	mg/l	M
SRO	Strontium oxide	XRF	XRF	XRFLAB	%	A
SSOLID	Suspended Solids (non filterable residue)	WATER	EXTLAB	CHEMLAB	mg/l	M
STREPT	fecal streptococci	WATER	EXTLAB	CHEMLAB	1/100ml	M
STSLAC	Steel slag content	MIC content in cement	Titration	Chemical lab	%	M
STYREN	styrene	WATER	EXTLAB	CHEMLAB	mg/l	M
TDS	Dissolved Solids	WATER	EXTLAB	CHEMLAB	mg/l	M
TE	tellurium	HEAVY METALS	AAS	EXTLAB	mg/kg	M
TEMP	temperature	TEMPERATURE	THERMOMETER	PHYSLAB	°C	M
THIC1	thickening time measurement 1	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC10	thickening time measurement 10	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC11	thickening time measurement 11	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC12	thickening time measurement 12	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC2	thickening time measurement 2	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC3	thickening time measurement 3	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC4	thickening time measurement 4	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC5	thickening time measurement 5	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC6	thickening time measurement 6	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC7	thickening time measurement 7	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC8	thickening time measurement 8	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THIC9	thickening time measurement 9	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
THO2	Thorium oxide	XRF	XRF	XRFLAB	%	A
TIO2	titanium oxide	XRF	XRF	XRFLAB	%	A
TL	thallium	HEAVY METALS	AAS	EXTLAB	mg/kg	M
TL MGL	thallium	WATER	EXTLAB	CHEMLAB	mg/l	M
TOC	total organic carbon	WATER	EXTLAB	CHEMLAB	mg/l	M
TOLUEN	toluene	WATER	EXTLAB	CHEMLAB	mg/l	M
TOTAL	total oxides	XRF	XRF	XRFLAB	%	C
TOTHM	total of heavy metals	HEAVY METALS	AAS	CHEMLAB	mg/kg	M
TOX	total organic halides	WASTE FUELS	EXTLAB	EXTLAB	%	M
TTHICK	thickening time at 100 Bc	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	min	M
TURB	Turbidity	WATER	CHEMICAL	CHEMLAB	NTU	M
V	vanadium	HEAVY METALS	AAS	EXTLAB	mg/kg	M
V MGL	vanadium	WATER	EXTLAB	CHEMLAB	mg/l	M
V2O5	Vanadium oxide	XRF	XRF	XRFLAB	%	A
VISC	viscosity	VISCOSITY	VISCOSIMETRE	CHEMLAB	Po	M
VISCD	viscosity dynamic	VISCOSITY	VISCOSIMETRE	CHEMLAB	Po	M
VISCK	viscosity kinematic	VISCOSITY	VISCOSIMETRE	CHEMLAB	Po	M
VOLAT	volatile matter	PROXIMATE	FURNACE	CHEMLAB	%	M
VOLT1	DC volt measurement 1	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT10	DC volt measurement 10	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT11	DC volt measurement 11	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT12	DC volt measurement 12	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT2	DC volt measurement 2	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT3	DC volt measurement 3	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M

HTC Identifier	Description	Analysis Definition (example)	Equipment (example)	Workplace*	Unit	A/M /C*
VOLT4	DC volt measurement 4	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT5	DC volt measurement 5	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT6	DC volt measurement 6	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT7	DC volt measurement 7	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT8	DC volt measurement 8	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
VOLT9	DC volt measurement 9	OWC THICKENING TIME	PRESSURIZED CONSISTOMET	PHYSLAB	volt	M
WATER	water	CONCRETE TESTING	CONCRETE LAB	CONCLAB	l	M
WATERA	Water absorption	Water absorption of aggregate	Oven	Physi lab	%	M
WC	water to cement ratio	CONCRETE TESTING	CONCRETE LAB	CONCLAB	ratio	M
WORK	workability	WORKABILITY	FLOWTABLE	PHYSLAB	mm	M
WR	water requirement at normal consistence	NORMAL CONSISTENCE	VICAT	PHYSLAB	%	M
WRET	water retention	WATER RETENTION	FILTER	PHYSLAB	%	M
YP	yield point - yield value	RHEOLOGY	VISCOMETER	PHYSLAB	lb/100ft ²	C
ZN	zinc	HEAVY METALS	AAS	EXTLAB	mg/kg	M
ZN MGL	zinc	WATER	EXTLAB	CHEMLAB	mg/l	M
ZNO	Zinc oxide	XRF	XRF	XRFLAB	%	A
ZRO2	Zirconium oxide	XRF	XRF	XRFLAB	%	A

6. MATERIALS

<8 GJ/T = R **Extension Material Property**

>8 GJ/T = F1..9 = number

C = coarse / granulated

D = dust (e.g. clinker dust)

E = emulsion

F = fine

G = gaseous

H = high (e.g. limestone, high ground slag)

L = low (e.g. limestone, low ground slag)

O = solid

P = powder

Q = liquid

R = reference material

W = wet

Examples

CLINKE.P = Clinker powder

GBFS.H = high ground slag

LIMEST.R = reference sample limestone

LIMEST.HW = limestone high wet

*1) Use in different CC

HTC Material	Name	Material Groups	HTC Group	PCS Remarks
ACBFS	Air cooled BFS	Mineral Components	MIC	OTHER SLAGS
ACOAL	Active coal	Processing aids	PA	OTHER PROCESSING AIDS
AD	Additives	Additives	AD	
ADMIXT	Admixture	RM concrete and agg.	RM	
AF	Alternative Fuels	Alternative Fuels	AF	
AGGR	Aggregates	Aggregates	AGGR	
AIR	Air	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
ALL	General All Plant	Other materials	OTHER	
ALSLUD	Aluminium sludge	Alternative Raw Mat.	ARM	OTHER SILICEOUS COMPONENTS
ALUST	Aluminium alum stone	Corrective raw mat.	CRM	
AMONIA	Amoniak	Processing aids	PA	
ANIREM	Animal remains	Alternative Fuels	AF	
ANTHCO	Mix Anthracit / petcoke	Traditional fuels	TF	
ANTHRA	Anthracit	Traditional fuels	TF	OTHER FUELS
ARM	Alternative Raw Materials	Alternative Raw Mat.	ARM	ALTERNATIVE RAW MATERIALS
ASBEST	Asbestos	Alternative Raw Mat.	ARM	OTHER ALUMINA-RICH COMPONENTS
AUX	General Auxiliaries	Other materials	OTHER	
BASH	Bottom Ash	Mineral Components	MIC	
BAUXIT	Bauxite	Corrective raw mat.	CRM	
BCGAN	Boiled coal gangue	Mineral Components	MIC	
BCPSP	Blended Cem Proficiency Sample Prog (CCRL samples)	Laboratory Materials	LM	
BITUMC	Bituminous coal	Traditional fuels	TF	
BITUMS	Bituminous Shale	Traditional fuels	TF	OTHER FUELS
BPDUST	By-pass dust	Intermediate Prod.	IP	
BRICKS	Bricks	Other materials	OTHER	
BSLAG	Bottom slag	Corrective raw mat.	CRM	
BUILDU	Build Ups (from preheater)	Other materials	OTHER	
C1	ASTM C 150 I	Cement	CEM	
C13N	CEM I 32,5 N	Cement	CEM	
C13NS	CEM I 32,5 N HS	Cement	CEM	
C13R	CEM I 32,5 R	Cement	CEM	
C14MS	NORMO 4 Microsilica	Cement	CEM	NORMO 4 MS
C14N	CEM I 42,5 N	Cement	CEM	NORMO 4
C14NA	CEM I 42,5 N LA	Cement	CEM	
C14NS	CEM I 42,5 N HS	Cement	CEM	
C14R	CEM I 42,5 R	Cement	CEM	
C15N	CEM I 52,5 N	Cement	CEM	
C15NS	CEM I 52,5 N HS	Cement	CEM	
C15R	CEM I 52,5 R	Cement	CEM	
C1A	ASTM C 150 I A	Cement	CEM	
C1P	ASTM C 595 I P	Cement	CEM	
C1PA	ASTM C 595 I P A	Cement	CEM	
C1PM	ASTM C 595 I PM	Cement	CEM	
C1PMA	ASTM C 595 I PM A	Cement	CEM	
C1S	ASTM C 595 I S	Cement	CEM	
C1SA	ASTM C 595 I S A	Cement	CEM	
C1SM	ASTM C 595 I SM	Cement	CEM	
C1SMA	ASTM C 595 I SM A	Cement	CEM	
C2	ASTM C 150 II	Cement	CEM	
C2A	ASTM C 150 II A	Cement	CEM	
C2AD5R	CEM II / AD 52,5 R	Cement	CEM	FORTICO 5R
C2AL3N	CEM II/A-L 32,5 N	Cement	CEM	
C2AL3R	CEM II/A-L 32,5 R	Cement	CEM	FLUVIO 3R
C2AL4N	CEM II/A-L 42,5 N	Cement	CEM	
C2AL4R	CEM II/A-L 42,5 R	Cement	CEM	
C2AM3N	CEM II/A-M 32,5 N	Cement	CEM	
C2AM3R	CEM II/A-M 32,5 R	Cement	CEM	
C2AM4N	CEM II/A-M 42,5 N	Cement	CEM	
C2AM4R	CEM II/A-M 42,5 R	Cement	CEM	
C2AMH	ASTM C 150 II A MH	Cement	CEM	
C2AO3N	CEM II/A-O 32,5 N	Cement	CEM	

HTC Material	Name	Material Groups	HTC Group	PCS Remarks
C2AO3R	CEM II/A-O 32,5 R	Cement	CEM	
C2AO4N	CEM II/A-O 42,5 N	Cement	CEM	
C2AO4R	CEM II/A-O 42,5 R	Cement	CEM	
C2AP3N	CEM II/A-P 32,5 N	Cement	CEM	
C2AP3R	CEM II/A-P 32,5 R	Cement	CEM	
C2AP4N	CEM II/A-P 42,5 N	Cement	CEM	
C2AP4R	CEM II/A-P 42,5 R	Cement	CEM	
C2AQ3N	CEM II/A-Q 32,5 N	Cement	CEM	
C2AQ3R	CEM II/A-Q 32,5 R	Cement	CEM	
C2AQ4N	CEM II/A-Q 42,5 N	Cement	CEM	
C2AQ4R	CEM II/A-Q 42,5 R	Cement	CEM	
C2AS3	CEM II/A-S 32,5	Cement	CEM	
C2AS3R	CEM II/A-S 32,5 R	Cement	CEM	PROVATO 3R, 15% HOS, 85% NOR4
C2AS4	CEM II/A-S 42,5	Cement	CEM	
C2AS4R	CEM II/A-S 42,5 R	Cement	CEM	PROVATO 4R, 15% HOS, 85% NOR5
C2AT3N	CEM II/A-T 32,5 N	Cement	CEM	
C2AT3R	CEM II/A-T 32,5 R	Cement	CEM	
C2AT4N	CEM II/A-T 42,5 N	Cement	CEM	
C2AT4R	CEM II/A-T 42,5 R	Cement	CEM	
C2AV3N	CEM II/A-V 32,5 N	Cement	CEM	
C2AV3R	CEM II/A-V 32,5 R	Cement	CEM	
C2AV4N	CEM II/A-V 42,5 N	Cement	CEM	
C2AV4R	CEM II/A-V 42,5 R	Cement	CEM	
C2AW3N	CEM II/A-W 32,5 N	Cement	CEM	
C2AW3R	CEM II/A-W 32,5 R	Cement	CEM	
C2AW4N	CEM II/A-W 42,5 N	Cement	CEM	
C2AW4R	CEM II/A-W 42,5 R	Cement	CEM	
C2BL3N	CEM II/B-L 32,5 N	Cement	CEM	
C2BL3R	CEM II/B-L 32,5 R	Cement	CEM	SELFCEM 3R, 25% KST, 75% NOR4
C2BL4R	CEM II/B-L 42,5 R	Cement	CEM	SELFCEM 4R, 25% KST, 75% NOR5
C2BM3N	CEM II/B-M 32,5 N	Cement	CEM	
C2BM3R	CEM II/B-M 32,5 R	Cement	CEM	
C2BP3N	CEM II/B-P 32,5 N	Cement	CEM	
C2BP3R	CEM II/B-P 32,5 R	Cement	CEM	
C2BQ3N	CEM II/B-Q 32,5 N	Cement	CEM	
C2BS3N	CEM II/B-S 32,5 N	Cement	CEM	
C2BS3R	CEM II/B-S 32,5 R	Cement	CEM	
C2BT3N	CEM II/B-T 32,5 N	Cement	CEM	
C2BT3R	CEM II/B-T 32,5 R	Cement	CEM	
C2BV3N	CEM II/B-V 32,5 N	Cement	CEM	
C2BV3R	CEM II/B-V 32,5 R	Cement	CEM	
C2BW3N	CEM II/B-W 32,5 N	Cement	CEM	
C2BW3R	CEM II/B-W 32,5 R	Cement	CEM	
C2MH	ASTM C 150 II MH	Cement	CEM	
C3	ASTM C 150 III	Cement	CEM	
C3A	ASTM C 150 III A	Cement	CEM	
C3A3N	CEM III/A 32,5 N	Cement	CEM	GOTTARDO 310, 45% NOR5, 55% HOS
C3A3R	CEM III/A 32,5 R	Cement	CEM	
C3AHS	ASTM C 150 III A HS	Cement	CEM	
C3AMS	ASTM C 150 III A MS	Cement	CEM	
C3B3N	CEM III/B 32,5 N	Cement	CEM	GOTTARDO 320, 34% NOR5, 66% HOS
C3B3R	CEM III/B 32,5 R	Cement	CEM	GOTTARDO 330, 25% FO5R, 75% HOS
C3C3N	CEM III/C 32,5 N	Cement	CEM	
C3C3R	CEM III/C 32,5 R	Cement	CEM	
C3HS	ASTM C 150 III HS	Cement	CEM	
C3MS	ASTM C 150 III MS	Cement	CEM	
C4	ASTM C 150 IV	Cement	CEM	
C4A3N	CEM IV/A 32,5 N	Cement	CEM	
C4A3R	CEM IV/A 32,5 R	Cement	CEM	
C4B3N	CEM IV/B 32,5 N	Cement	CEM	
C4B3R	CEM IV/B 32,5 R	Cement	CEM	
C5	ASTM C 150 V	Cement	CEM	
C5A3N	CEM V/A 32,5 N	Cement	CEM	
C5A3R	CEM V/A 32,5 R	Cement	CEM	
C5B3N	CEM V/B 32,5 N	Cement	CEM	
C5B3R	CEM V/B 32,5 R	Cement	CEM	
C6H6	Benzene	Emission	EMI	
CAFEX	Expansive aluminoferrit cement	Cement	CEM	
CAFMEEX	Macro expansive aluminoferrit cement	Cement	CEM	
CAFRH4	Rapid hardening aluminoferrit cement 42 ⁵	Cement	CEM	
CAFRH5	Rapid hardening aluminoferrit cement 52 ⁵	Cement	CEM	
CAFRH6	Rapid hardening aluminoferrit cement 62 ⁵	Cement	CEM	
CAFRH7	Rapid hardening aluminoferrit cement 72 ⁵	Cement	CEM	
CAFSS3	Self-stress aluminoferrit 30	Cement	CEM	
CAFSS4	Self-stress aluminoferrit 40	Cement	CEM	
CAFSS5	Self-stress aluminoferrit 50	Cement	CEM	
CAL5	Aluminate cement 50	Cement	CEM	

HTC Material	Name	Material Groups	HTC Group	PCS Remarks
CAL6	Aluminate cement 60	Cement	CEM	
CAL7	Aluminate cement 70	Cement	CEM	
CAL8	Aluminate cement 80	Cement	CEM	
CALEX4	Alunite expansive cement 42.5	Cement	CEM	
CALEX5	Alunite expansive cement 52.5	Cement	CEM	
CALEX6	Alunite expansive cement 62.5	Cement	CEM	
CALIME	Calcium lime	Raw Materials	RM	
CAOTCH	Caotchouc	Alternative Fuels	AF	
CBR3	Base road portland cement 30	Cement	CEM	
CBR4	Base road portland cement 40	Cement	CEM	
CBR5	Base road portland cement 50	Cement	CEM	
CC3R	NMX-C-414 Composite (Blended) Portland Cement 30 R	Cement	CEM	
CC3SA	NMX-C-414 Composite Portland Cement 30 Sulphate Res	Cement	CEM	
CC4	NMX-C-414 Composite (Blended) Portland Cement 40 (C	Cement	CEM	
CCOLO2	Coloured cement 27.5	Cement	CEM	
CCOLO3	Coloured cement 32.5	Cement	CEM	
CCOLO4	Coloured cement 42.5	Cement	CEM	
CEM	CEM	Cement	CEM	
CEMAT	Cementitious materials	Cementitious mat.	CEM	
CEXMSA	Micro expansive sulphoaluminate cemen	Cement	CEM	
CEXSA	Expansive sulphoaluminate cemen	Cement	CEM	
CGSLAG	Copper gangue slag	Corrective raw mat.	CRM	
CGU	ASTM 1157 GU	Cement	CEM	
CHARCO	Charcoal	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
CHE	ASTM 1157 HE	Cement	CEM	
CHS	ASTM 1157 HS	Cement	CEM	
CINDER	Cinder	Mineral Components	MIC	
CLASA4	Low alkali sulphoaluminate cement 42.5	Cement	CEM	
CLASA5	Low alkali sulphoaluminate cement 52.5	Cement	CEM	
CLAY	Clay	Raw Materials	RM	
CLH	ASTM 1157 LH	Cement	CEM	
CLHEX3	Low heat expansive cement 32.5	Cement	CEM	
CLHEX4	Low heat expansive cement 42.5	Cement	CEM	
CLHSS3	Low heat steel slag cement 32.5	Cement	CEM	
CLHSS4	Low heat steel slag cement 42.5	Cement	CEM	
CLINK1	Clinker for ASTM type I	Clinker	CLINKE	
CLINK2	Clinker for ASTM type II	Clinker	CLINKE	
CLINK3	Clinker for ASTM type III	Clinker	CLINKE	OTHER CLINKER
CLINK4	Clinker for ASTM type IV	Clinker	CLINKE	OTHER CLINKER
CLINK5	Clinker for ASTM type V	Clinker	CLINKE	
CLINKA	Clinker low alkal	Clinker	CLINKE	OTHER CLINKER
CLINKAF	Aluminoferri clinker	Clinker	CLINKE	
CLINKAL	Alumina clinker	Clinker	CLINKE	
CLINKE	Clinker	Clinker	CLINKE	OTHER CLINKER
CLINKF	Fluoroaluminate clinker	Clinker	CLINKE	
CLINKM	Moderate heat clinker	Clinker	CLINKE	
CLINKS	Sulphoaluminate clinker	Clinker	CLINKE	
CLPH4	Type I low PH value sulphoaluminate cement 42.5	Cement	CEM	
CLPH5	Type I low PH value sulphoaluminate cement 52.5	Cement	CEM	
CM	NMX-C-021 Masonry Cement	Cement	CEM	
CM1	Masonry cement 12.5	Cement	CEM	
CM2	Masonry cement 22.5	Cement	CEM	
CMAM	ASTM C 91 M	Cement	CEM	
CMAN	ASTM C 91 N	Cement	CEM	
CMAS	ASTM C 91 S	Cement	CEM	
CMFEED	Cement mill feed	Intermediate Prod.	IP	OTHER CLINKER
CMH	ASTM 1157 MH	Cement	CEM	
CMS	ASTM 1157 MS	Cement	CEM	
CO	Carbon monoxide	Emission	EMI	
CO2	Carbon dioxide	Emission	EMI	
CO3RSA	NMX-C-414 Ordinary Portland Cement 30 R Sulphate Res	Cement	CEM	
CO3RSAH	NMX-C-414 Ordinary Portland Cement 30 R Sulphate Res	Cement	CEM	
CO4R	NMX-C-414 Ordinary Portland Cement 40 R (CPO40R)	Cement	CEM	
COAL	Coal	Traditional fuels	TF	
COALCO	Mix coal / petcoke	Traditional fuels	TF	OTHER FUELS
COALGA	Coal gangue	Mineral Components	MIC	
COILWA	Oil well cemen A	Cement	CEM	
COILWB	Oil well cemen B	Cement	CEM	
COILWC	Oil well cemen C	Cement	CEM	
COILWD	Oil well cemen D	Cement	CEM	
COILWE	Oil well cemen E	Cement	CEM	
COILWF	Oil well cemen F	Cement	CEM	
COILWG	Oil well cemen G	Cement	CEM	
COILWH	Oil well cemen H	Cement	CEM	
COSLAG	Copper Slag	Mineral Components	MIC	
CP	ASTM C 595 P	Cement	CEM	
CP14	P.I 42.5	Cement	CEM	

HTC Material	Name	Material Groups	HTC Group	PCS Remarks
CP14R	P.I 42.5R	Cement	CEM	
CP15	P.I 52.5	Cement	CEM	
CP15R	P.I 52.5R	Cement	CEM	
CP16	P.I 62.5	Cement	CEM	
CP16R	P.I 62.5R	Cement	CEM	
CP24	P.II 42.5	Cement	CEM	
CP24R	P.II 42.5R	Cement	CEM	
CP25	P.II 52.5	Cement	CEM	
CP25R	P.II 52.5R	Cement	CEM	
CP26	P.II 62.5	Cement	CEM	
CP26R	P.II 62.5R	Cement	CEM	
CPA	ASTM C 595 P A	Cement	CEM	
CPA	ASTM C 595 P A	Cement	CEM	
CPC3	P.C 32.5	Cement	CEM	
CPC3R	Composite portland cement 32.5R	Cement	CEM	
CPC4	P.C 42.5	Cement	CEM	
CPC4R	Composite portland cement 42.5R	Cement	CEM	
CPC5	P.C 52.5	Cement	CEM	
CPC5R	Composite portland cement 52.5R	Cement	CEM	
CPF3	P.F 32.5	Cement	CEM	
CPF3R	Portland fly ash cement 32.5R	Cement	CEM	
CPF4	Portland fly ash cement 42.5	Cement	CEM	
CPF4R	Portland fly ash cement 42.5R	Cement	CEM	
CPF5	Portland fly ash cement 52.5	Cement	CEM	
CPF5R	Portland fly ash cement 52.5R	Cement	CEM	
CPHSR4	High Sulfate resistance portland cement 42.5	Cement	CEM	
CPHSR5	High Sulfate resistance portland cement 52.5	Cement	CEM	
CPL3	Limestone portland cement 32.5	Cement	CEM	
CPL3R	Limestone portland cement 32.5R	Cement	CEM	
CPL4	Limestone portland cement 42.5	Cement	CEM	
CPL4R	Limestone portland cement 42.5R	Cement	CEM	
CPLH4	Low heat portland cement 42.5	Cement	CEM	
CPMH4	Moderate heat portland cement 42.5	Cement	CEM	
CPMSR4	Moderate sulfate resistance portland cement 42.5	Cement	CEM	
CPMSR5	Moderate Sulfate resistance portland cement 52.5	Cement	CEM	
CPNSR5	Non-shrinking and rapid hardening portland cement 52.5	Cement	CEM	
CPNSR6	Non-shrinking and rapid hardening portland cement 62.5	Cement	CEM	
CPNSR7	Non-shrinking and rapid hardening portland cement 72.5	Cement	CEM	
CPO4	P.O 42.5	Cement	CEM	
CPO4R	P.O 42.5R	Cement	CEM	
CPO5	P.O 52.5	Cement	CEM	
CPO5R	P.O 52.5R	Cement	CEM	
CPP3	Portland-pozzolana cement 32.5	Cement	CEM	
CPP3R	Portland-pozzolana cement 32.5R	Cement	CEM	
CPP4	Portland-pozzolana cement 42.5	Cement	CEM	
CPP4R	Portland-pozzolana cement 42.5R	Cement	CEM	
CPP5	Portland-pozzolana cement 52.5	Cement	CEM	
CPP5R	Portland-pozzolana cement 52.5R	Cement	CEM	
CPPS3	Portland phosphorous slag cement 32.5	Cement	CEM	
CPPS4	Portland phosphorous slag cement 42.5	Cement	CEM	
CPPS5	Portland phosphorous slag cement 52.5	Cement	CEM	
CPR4	Portland cement for road cement 42.5	Cement	CEM	
CPR5	Portland cement for road cement 52.5	Cement	CEM	
CPR6	Portland cement for road cement 62.5	Cement	CEM	
CPRH32	Rapid hardening portland cement 32.5	Cement	CEM	
CPRH37	Rapid hardening portland cement 37.5	Cement	CEM	
CPRH42	Rapid hardening portland cement 42.5	Cement	CEM	
CPSA3	P.S.A 32.5	Cement	CEM	
CPSA3R	P.S.A 32.5R	Cement	CEM	
CPSA4	P.S.A 42.5	Cement	CEM	
CPSA4R	P.S.A 42.5R	Cement	CEM	
CPSA5	P.S.A 52.5	Cement	CEM	
CPSA5R	P.S.A 52.5R	Cement	CEM	
CPSB3	P.S.B 32.5	Cement	CEM	
CPSB3R	P.S.B 32.5R	Cement	CEM	
CPSB4	P.S.B 42.5	Cement	CEM	
CPSB4R	P.S.B 42.5R	Cement	CEM	
CPSB5	P.S.B 52.5	Cement	CEM	
CPSB5R	P.S.B 52.5R	Cement	CEM	
CPSLH3	Low heat slag portland cement 32.5	Cement	CEM	
CPSP	Concrete Proficiency Sample Program (CCRL samples)	Laboratory Materials	LM	
CPSP	Concrete Proficiency Sample Program (CCRL samples)	Laboratory Materials	LM	
CPSS1	Self-stress portland cement 1	Cement	CEM	
CPSS2	Self-stress portland cement 2	Cement	CEM	
CPSS3	Self-stress portland cement 3	Cement	CEM	
CPSS4	Self-stress portland cement 4	Cement	CEM	
CRHHS6	Rapid hardening high strength aluminate cement 62.5	Cement	CEM	

HTC Material	Name	Material Groups	HTC Group	PCS Remarks
CRHHS7	Rapid hardening high strength aluminate cement 72 ^h	Cement	CEM	
CRHHS8	Rapid hardening high strength aluminate cement 82 ^h	Cement	CEM	
CRHHS9	Rapid hardening high strength aluminate cement 92 ^h	Cement	CEM	
CRHSA4	Rapid hardening sulpoaluminate cement 42 ^h	Cement	CEM	
CRHSA5	Rapid hardening sulpoaluminate cement 52 ^h	Cement	CEM	
CRHSA6	Rapid hardening sulpoaluminate cement 62 ^h	Cement	CEM	
CRHSA7	Rapid hardening sulpoaluminate cement 72 ^h	Cement	CEM	
CRM	Corrective Raw Materials	Corrective raw mat.	CRM	
CRSRH1	Rapid setting rapid hardening cement 15C	Cement	CEM	
CRSRH2	Rapid setting rapid hardening cement 20C	Cement	CEM	
CS	ASTM C 595 S	Cement	CEM	
CSA	ASTM C 595 S A	Cement	CEM	
CSAND	Sand cement	Cement	CEM	
CSSAL3	Self-stress aluminate cement 3.0	Cement	CEM	
CSSAL4	Self-stress aluminate cement 4.5	Cement	CEM	
CSSAL6	Self-stress aluminate cement 6.0	Cement	CEM	
CSSM17	Steel slag masnory cement175	Cement	CEM	
CSSM22	Steel slag masnory cement225	Cement	CEM	
CSSM27	Steel slag masnory cement275	Cement	CEM	
CSSR4	Steel slag road cement425	Cement	CEM	
CSSSA3	Self-stress sulpoaluminate cement 30	Cement	CEM	
CSSSA4	Self-stress sulpoaluminate cement 40	Cement	CEM	
CSSSA5	Self-stress sulpoaluminate cement 50	Cement	CEM	
CSTS2	Steel and iron slag cement 27.5	Cement	CEM	
CSTS3	Steel and iron slag cement 32.5	Cement	CEM	
CSTS4	Steel and iron slag cement 42.5	Cement	CEM	
CUHRSA	Ultra-rapid hardening regulated set aluminate cemen	Cement	CEM	
CWHIT3	White cement 32.5	Cement	CEM	
CWHIT4	White cement 42.5	Cement	CEM	
CWHIT5	White cement 52.5	Cement	CEM	
CWHIT6	White cement 62.5	Cement	CEM	
DF	Dioxin, furanes	Emission	EMI	
DISTRE	Distillation residues	Alternative Fuels	AF	
DSGYPS	De-sulphur gypsum	Additives	AD	
DSS	Dried sewage sludge	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
DUST	Dust	Emission	EMI	
EFFSEW	Effluent Sewage Water	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
EFFWAT	Effluent Water	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
EMI	Emission	Emission	EMI	
EMPTY	Containment	Other materials	OTHER	
EMULS	Diverse Emulsions	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
EOIL	Transformer oil, Resistor etc	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
Example				
EXPLOS	Explosives		OTHER	
FEARTH	Fuller's earth	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
FESO4	Iron Sulphate	Additives	AD	
FLUORI	Calcium Fluoride	Raw Materials	RM	
FLYASH	Fly ash	Mineral Components	MIC	
FOSAND	Foundry sand	Alternative Raw Mat.	ARM	OTHER SILICEOUS COMPONENTS
FUEL	Fuel	TF + AF	FUEL	
GANGUE	Gangue powder	Corrective raw mat.	CRM	
GAS	Natural gas	Traditional fuels	TF	
GBFS	Granulated Blast Furnace Slag	Mineral Components	MIC	
GLASS	Glass Wool	Alternative Raw Mat.	ARM	OTHER ALUMINA-RICH COMPONENTS
GRAID	Grinding aid	Processing aids	PA	
GRAPHI	Graphit	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
GRAVEL	Gravel		AGGR	
GSHALE	Granulated Shale	Raw Materials	RM	
HCL	Hydrogen chloride	Emission	EMI	
HM	Heavy metals	Emission	EMI	
HOIL	Hydraulic oil	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
HOTME1	Hot meal for clinker type I	Intermediate Prod.	IP	
HOTME5	Hot meal for clinker type V	Intermediate Prod.	IP	
HOTMEA	Hot meal	Intermediate Prod.	IP	
HYDLIM	Lime hydrate Ca(OH) ₂	Lime	LIME	
IP	Intermediate Products	Intermediate Prod.	IP	
IRONOX	Iron oxide (Iron ore)	Corrective raw mat.	CRM	
KAOLIN	Kaolin	Corrective raw mat.	CRM	
KIDUST	Kiln dust	Intermediate Prod.	IP	
KIFEE1	Kiln Feed/Slurry for clinker type	Intermediate Prod.	IP	
KIFEE5	Kiln Feed/Slurry for clinker type V	Intermediate Prod.	IP	
KIFEED	Kiln Feed/Slurry	Intermediate Prod.	IP	
LACEM	Low Alkali Cement	Low Alkali Cement	CEM	
LIGNIT	Lignite	Traditional fuels	TF	
LIME	Lime (CaO)	Lime	LIME	
LIMEST	Limestone	Extracted Raw Mat.	RAW / RM / MIC	
LUBRI	Lubricants	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /

HTC Material	Name	Material Groups	HTC Group	PCS
MAGNET	Magnetite	Corrective raw mat.	CRM	OTHER IRON-RICH COMPONENTS
MARL	Marl	Raw Materials	RM	
MCPSP	Masonry Cement Proficiency Sample Program (CCRL sample)	Laboratory Materials	LM	
MIC	Mineral Components	Mineral Components	MIC	
MILLSC	Millscale	Corrective raw mat.	CRM	OTHER IRON-RICH COMPONENTS
MOIL	Gearoil, Vehicle etc.	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
MORTAR	Mortar	Lime	LIME	
NAANH	Natural anhydrit	Additives	AD	
NAGYPS	Gypsum natural	Additives	AD	
NH3	Nitrogen dioxide	Emission	EMI	
NOX	Ammonia	Emission	EMI	
O2	Oxygen	Emission	EMI	
OIL	Fuel oil	Traditional fuels	TF	
OILH	Fuel oil, heavy	Traditional fuels	TF	
OILL	Fuel oil, light / Diesel	Traditional fuels	TF	
OWAPIA	Oil well API A	Cement	CEM	
OWAPIB	Oil well API B	Cement	CEM	
OWAPIC	Oil well API C	Cement	CEM	
OWAPID	Oil well API D	Cement	CEM	
OWAPIE	Oil well API E	Cement	CEM	
OWAPIF	Oil well API F	Cement	CEM	
OWAPIG	Oil well API G	Cement	CEM	
OWAPIH	Oil well API H	Cement	CEM	
PAPER	Waste paper, carton	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
PCPSP	Portland Cement Proficiency Sample Program (CCRL sample)	Laboratory Materials	LM	
PERFEN	Performance Enhancer	Processing aids	PA	
PERLIT	Perlite	Corrective raw mat.	CRM	
PETCOK	Petrol coke	Traditional fuels	TF	
PETROL	Petroleum (including Petrol)	Traditional fuels	TF	
PHGYPS	Phosphor gypsum	Additives	AD	
PHSLAG	Phosphor slag	Mineral Components	MIC	
PHSLAO	Original phosphor slag	Raw Materials	RM	
PLANTS	Plants	Alternative Fuels	AF	
PLASTI	Plastics	Alternative Fuels	AF	
POZZOL	Pozzolan	Mineral Components	MIC	ARM
PREBLE	Preblend	Intermediate Prod.	IP	
PYRASH	Pyrite Ash	Corrective raw mat.	CRM	
QUILIM	Quick Lime	Lime	LIME	
RAMEA1	Raw Meal/Slurry for clinker type 1	Intermediate Prod.	IP	
RAMEA5	Raw Meal/Slurry for clinker type 5	Intermediate Prod.	IP	
RAMEAL	Raw Meal/Slurry	Intermediate Prod.	IP	
RAW	Extracted Raw Materials	Extracted Raw Mat.	RAW	
REDUST	Re used mix of dust	Intermediate Prod.	IP	
REFUEL	Refuse derived fuel	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
RESIN	Resin	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
RM	Raw Materials	Raw Materials	RM	
RMC	Ready mixed concrete	Concrete	RMC	
RMFEED	Raw mill feed	Intermediate Prod.	IP	
RUBBER	Waste rubber	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
SAND	Sand	Corrective raw mat.	CRM	
SANDM	Manufactured sand	RM concrete and agg.	RM	
SANDST	Sandstone	Corrective raw mat.	CRM	
SAWDUS	Saw dust	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
SBF	Solvent Based Fuel	Alternative Fuels	AF	
SHALE	Shale	Raw Materials	RM	TF
SIFUME	Silica fume	Mineral Components	MIC	
SLAG	Non-granulated blast furnace slag	Corrective raw mat.	CRM	
SLUDGE	Sewage sludge	Alternative Fuels	AF	
SLURRY	Slurry	Intermediate Prod.	IP	
SO2	Sulphur dioxide	Emission	EMI	
SOLIDW	Solid waste	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
SOLVEN	Solvents	Alternative Fuels	AF	
STSLAG	Steel slag (LD slag)	Mineral Components	MIC	
SUGAR	Sugar	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
SULSLA	Slag from sulphate industry	Corrective raw mat.	CRM	
SYANH	Synthetic anhydrit	Additives	AD	
SYGYPS	Gypsum synthetic	Additives	AD	
TEXTIL	Waste textile	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
TF	Traditional fuels	Traditional fuels	TF	
THINN	Thinning aid	Processing aids	PA	
TYRE	Tyre, tyre derived fuels	Alternative Fuels	AF	
TYREF	Tyre Fluffs, tyre derived fuels	Alternative Fuels	AF	
URINE	Urine	Processing aids	PA	OTHER PROCESSING AIDS
VOC	Volatile organic components	Emission	EMI	OTHER RAW MATERIALS, SEMI-FINISHED /
WAL	Waste alu corrective	Alternative Raw Mat.	ARM	OTHER IRON-RICH COMPONENTS
WATER	Industrial, Domestic etc.	Other materials	OTHER	OTHER RAW MATERIALS, SEMI-FINISHED /
WCEM	White Cement	White Cement	CEM	

HTC Material	Name	Material Groups	HTC Group	PCS Remarks
WCHEM	Chemical waste	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
WCOAL	Waste coal	Traditional fuels	TF	OTHER FUELS
WCOKE	Waste coke	Traditional fuels	TF	OTHER FUELS
WFE	Waste iron corrective	Alternativ Raw Mat.	ARM	ALTERNATIVE RAW MATERIALS
WLIQ	Liquid waste (e.g. Photo industry liquids)	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
WOIL	Oil, lubricants (waste oil)	Alternative Fuels	AF	
WOOD	Waste wood	Alternative Fuels	AF	
WPHARM	Pharmaceutical waste	Alternative Fuels	AF	OTHER ALTERNATIVE FUELS
WROCK	Waste Rock from coal mining (after firing)	Cement	RM	
WSAND	Waste sand	Alternativ Raw Mat.	ARM	AF
WSEWAG	Sewage sludge (waste sewage)	Alternativ Raw Mat.	ARM	OTHER SILICEOUS COMPONENTS
WSOIL	Contaminated soil (waste soil)	Alternativ Raw Mat.	ARM	
Z....	Special Product, local use only			OTHER ALTERNATIVE FUELS
ZCARBON	Waste Black Carbon	Alternative Fuels	AF	
ZCEM1	PISTENZEMENT	Cement	CEM	
ZDD100	DORODUR 100	Cement	CEM	100 % GOES
ZDD135	DORODUR 135	Cement	CEM	35% NOR4, 65% GOES
ZDD160	DORODUR 160	Cement	CEM	60% NOR4, 40% GOES
ZDDH50	DORODUR H50	Cement	CEM	50% NOR5R, 50% GOES
ZDDH70	DORODUR H70	Cement	CEM	70% NOR5R, 30% GOES
ZDDS40	DORODUR FS40	Cement	CEM	60% NOR4, 40% EFS
ZDFB	DOROFLOW B	Cement	CEM	
ZDFBR	DOROFLOW BR	Cement	CEM	
ZDFH	DOROFLOW H	Cement	CEM	20% KST, 80% GOES
ZDFN	DOROFLOW N	Cement	CEM	60% KST, 40% GOES
ZDFR	DOROFLOW R	Cement	CEM	100% GOES
ZDP35	DOROPORT TB 35	Cement	CEM	35% NOR4, 65% GOES
ZDS30+	DOROSOL C30+	Cement	CEM	30% UGKA, 65% GOES, 5% Sz
ZDS50+	DOROSOL C50+	Cement	CEM	50% UGKA, 45% GOES, 5% Sz
ZDS70+	DOROSOL C70+	Cement	CEM	70% UGKA, 25% GOES, 5% Sz
ZDSC30	DOROSOL C30	Cement	CEM	30% UGKA, 70% GOES
ZDSC50	DOROSOL C50	Cement	CEM	50% UGKA, 50% GOES
ZDSC70	DOROSOL C70	Cement	CEM	70% UGKA, 30% GOES
ZM3A	MODERO 3A	Cement	CEM	50% NOR5, 50% HOS
ZM3B	MODERO 3B	Cement	CEM	34% NOR5, 66% HOS
ZM3C	MODERO 3C	Cement	CEM	25% NOR5, 75% HOS
ZSCL	Spent Cell Liner (From Aluminium Smelter)	Alternative Fuels	AF	

7. UNITS

ANA = Analyse
EMI = Emission data
HTD = Harmonized Technical Data
STD = Standard metric units

Unit	Description	Name or Application	Group
#	number, count	number, count	HTD
#h /t	number hour per ton	personell productivity	HTD
%	percent (per hundred)	fineness, feed moisture, efficiency, utilization etc.	STD / HTD
/ or ratio	ratio	ratio	HTD
°	degree	inclination	STD
°C	degree Celsius	gas or material temperature	STD
µg/l	microgram per liter	concentration	ANA
µg/m ² /day	microgram per square metre per day	Dust fallout	EMI
µg/m ³	microgram per cubic meter	concentration	EMI
µm	micrometer	particle size	STD
µStrain	microstrain	Concrete and Mortar Shrinkage	ANA
1/100ml	count per 100 ml	bacteria counts for water testing	ANA
1/25ml	count per 25 ml	bacteria counts for water testing	ANA
1/ml	count per ml	bacteria counts for water testing	ANA
a	year		STD
A	Ampere (amp)	amperage (of transformers and motors)	STD
bar	bar	pressure rating (e.g. of coal grinding system equipment)	STD
Bc	consistency	Bearden units of slurry consistency (owc)	ANA
Bq	becquerel	radioactivity	ANA
cm ² /g	square centimeter per gram	blaine	ANA
cP	centi Poise	apparent, plastic and effective viscosity (dynamic)	ANA
cSt	centi Stoke	viscosity (of fuel oil) at a given pressure and temperature (kinematic)	STD
d	day		STD
dB	decibel	sound level (A or B)	STD
g	gram	mass (of dust)	STD / EMI
g/cm ³	gram per cubic centimeter	Cement density	STD
g/l	gram per liter	litre weighth	ANA
g/m ²	gram per square meter	specific weight (of media for baghouse)	STD
g/m ³	gram per cubic meter	dust load (of gas flow)	STD
g/t	gram per ton	wear rate	STD
GJ	gigajoule	quantity of heat	STD
h	hour		STD / HTD
J	joule	quantity of heat	STD
J/g	joule per gram	specific calorific value	ANA
J/g/h	joule per gram per hour	exhaust rate for heat of hydration	ANA
K	degree Kelvin	gas temperature (absolute)	STD
kA	kiloamp	amperage (of breaker and fuse interrupting ratings)	STD
kg	kilogram	mass (of fan, wear parts, materials)	STD
kg m ²	kilogram meter squared	moment of inertia (of fan)	STD
kg/cm ²	kilogram per square centimeter	Hertz and bearing pressure (of kiln tires)	STD
kg/h	kilogram per hour	mass flow rate (of coal to burners)	STD
kg/m ³	kilogram per cubic meter	specific material load (of gas flow to separator), density (of gas for fans)	STD
kg/m ³	kilogram per cubic meter	density, specific weight of materials	STD
kg/t	kilogram per ton	specific emission	EMI
kJ	kilojoule	quantity of heat	STD
kJ/kg	kilojoule per kilogram	specific heat consumption	STD

Unit	Description	Name or Application	Group
km	kilometer	distance	STD
kN/m ²	kilonewton per square meter	specific pressure (of rollers in mill)	STD
kPa	kilopascal	water pump pressure (for downcomer water spray system)	STD
kV	kilovolt	voltage of power distribution devices and motors)	STD
kVA	kilovolt-amp	apparent power (of departmental transformers)	STD
kVA _r	kilovolt-amp reactive	reactive power (of capacitors and synchronous motors)	STD
kW	kilowatt	motor size, required power	STD
kWh	kilowatt hour	electrical energy consumption	STD / HTD
kWh/t	kilowatt hour per ton	specific electrical energy consumption per ton	HTD
l	liter	volume (1.0 l = 1.0 dm ³)	STD
l/h	liter per hour	water flow rate (e.g. water spray system)	STD
l/m ³	litre per cubic metre	Bleed of wet concrete	ANA
l/s	liter per second	volume flow (of fluids, cooling water, etc.)	STD
m	meter (or metre)	distance, diameter, length, height	STD
m/s	meter per second	gas velocity, tip speed, tangential velocity, belt speed	STD
m/s ²	meter per square second	acceleration	STD
m ²	square meter	area (of nozzle ring, roller track, inlet, dip tube, grate surface, plates)	STD
m ² /kg	square meter per kilogram	Fineness by Blaine	ANA
m ² /s	square meter per second	centrifugal force (of rotators: separator, fan motor)	STD
m ³	cubic meter	volume	STD / HTD
m ³ /h	cubic meter per hour	gas flow (actual)	STD
m ³ /min	cubic meter per minute	volume flow (of main burner combustion fan)	STD
m ³ /min m ²	cubic meter per minute and square meter	air-to-cloth ratio (of baghouse), specific cooling area (of heat exchanger)	STD
m ³ /s	cubic meter per second	volume flow (of fan)	STD
m ³ /s m ²	cubic meter per second and square meter	specific air loading (on grate cooler grates)	STD
m ³ /truck	cubic meter per truck	volume per Truck	HTD
mA	milliamp	amperage (of instrumentation signals)	STD
mASL	meter above sea level	plant elevation	STD
mbar	millibar	gas flow differential pressure	STD
mg	milligram	mass (of dust)	STD
mg/kg	milligram per kilogram	concentration	ANA
mg/m ² /day	mg per square metre per day	Dust fallout	EMI
mg/m ³	milligram per cubic meter	concentration	EMI
min	minute		STD / ANA
min ⁻¹ or 1/min	cycles per minute	speed of rotation, cooler speed (strokes)	STD
MJ	megajoule	thermal energy consumption, quantity of heat	HTD / STD
MJ/t	megajoule per ton	specific thermal energy consumption per ton	HTD
ml	milliliter	volume	STD
mm	millimeter	distance, diameter, thickness, width, grain size	STD / ANA
mm ²	square millimeter		STD
MPa	mega Pascale	pressure (e.g mortar strenght)	ANA
mV	millivolt	voltage (of instrumentation devices)	STD
MVA	megavolt-amp	apparent power	STD
MW	megawatt	capacity (of air heater, transformers, power lines)	STD
MW/m ²	megawatt per square meter	thermal loading (of kiln)	STD
MWh	megawatt hour	electrical consumption	STD
N/mm ²	Newton per square millimeter	bending stress (of kiln shell)	STD
na	not applicable	Logs without unit	
ng/m ³	nanogram per cubic meter	concentration	EMI

Unit	Description	Name or Application	Group
ngTEQ/Nm3	Toxic Equivalent per Nm3 (WHO-98)	Dioxin and Furan in emissions	HMI
Nm	Newton-meter	torque (for start-up of mills, fans, etc))	STD
Nm ³	normal cubic meter	normalised volume	STD / EMI
Nm ³ /h	normal cubic meter per hour	normalized gas flow	STD
Nm ³ /kg	normal cubic meter per kilogram	specific cooling air (of grate cooler)	STD
Nm ³ /s	normal cubic meter per second	normalized gas flow	STD
NTU	nephelometric turbidity units	Water Turbidity	ANA
Pa	Pascale	shear stress (owc)	ANA
RC		reported currency	HTD
RC/m ³		specific cost in reported currency per m3	HTD
RC/t		specific cost in reported currency per ton	HTD
RC/tkm		specific cost in reported currency per tonkm	HTD
s	second		STD
s ⁻¹ or 1/s	cycles per second	frequency (Hertz)	STD
SSU	saybolt second universal	viscosity (of fuel oil) at a given pressure and temperature	STD
t	ton	mass (of kiln tire, wear parts, materials)	STD
t/a	tons per year	capacity	HTD
t/d	ton per day	capacity	STD
t/d m ²	ton per day and square meter	specific loading (of grate cooler)	STD
t/d m ³	ton per day and cubic meter	specific loading (of kiln)	STD
t/h	ton per hour	capacity, production rate	STD
t/h m ²	ton per hour and meter squared	specific loading (of separator)	STD
t/m ³	ton per cubic meter		STD
V	Volt	voltage (of power distribution devices and motors)	STD
VA	volt-amp	apparent power (of control transformers)	STD
Ω	Ohm	electrical resistance of consumers, wires, etc.	STD
W	Watt	power, e.g. motor size, required power	STD
Ω/cm	Ohms/cm	resistance of water (inverse of conductivity)	ANA
Ws = J	Watt second = Joule	energy	STD

Prefix	Abbreviation
Tera	T
Giga	G
Mega	M
Kilo	k
Hekto	h
Deka	da
Deci	d
Centi	c
Milli	m
Micro	μ
Nano	n
Piko	p

Notes:

- Units are not abbreviations, they stand on their own. Units are not followed by a point and do not use a plural "s".
- Prefixes are always directly attached to their unit without any space between since with a space, each "m" refers to a meter (e.g.
- Units with capital letters are derived from the originating persons' names, i.e. **W**att, **A**mpere, **C**elsius, **K**elvin, etc.
- In prefixes, capitalization is used to differentiate between orders of magnitude, i.e. "**m**" = milli; "**M**" = Mega
- "k" for kilogram, kilometer, etc. is always in lower case
- Prefixes for larger than normal orders are generally capitalized, those for smaller orders use small letters
- Clarify right in the beginning of a memo or report, whether metric or imperial units are used! Do not use "mt" or "st" to clarify.
- In certain derived units, the division line is considered dominant, therefore the following is correct:

$$\text{Specific cross sectional load} = \frac{t/d}{m^2} = \frac{t}{d m^2} = t/d m^2$$

8. TIS STANDARD SIGNALS

HTC	Description	Reference or Input required			HTC specifications	Calculation info (A = Average, INT = Integration, S = Standard Deviation,		PCS or LIMS		Description
Single item		HARP	ATR	HRM	Location / Material specific		HTC calculation	TIS Input signal	HAC of non PCS System	
	Raw Material Extraction									
100+TEXTR+RAW	Raw Material Extraction Volume (t)	7.3.8.2			101+TPROD+LIMEST	Int		211-BW1.F1		Belt scale after crusher 1
	Planned volume				101+TPROD.U+LIMEST		100+KWH+RM	M 1P1-1S1.J1		Energy meter raw material extraction
	Raw Material Preparation									
200+KWHT+RM	Specific energy consumption		???			/	200+TPROD+RM 200+KWH+RM	2P1-1S1.J1+ 2P2...		Energy meter raw material preparation
	Power absorbed		???			A,cond.25%		211-HC1.J1		Power crusher limestone
200+TCONS+RM	Volume consumed				201+TCONS+LIMEST	Int		211-WF0.F1		Crusher 1 weigher total fresh feed (wet),normally not installed and equal 211-BW1
200+TPROD+RM	Raw Material Preparation Volume (t)	7.3.8.3			201+TPROD+RM 201+TPROD+LIMEST 201+TPROD+SHALE	Int or Int + +	211+TPROD+LIMEST 221+TPROD+SHALE 200+TPURCH+LIMEST	291-BW1.F1 211-BW1.F1 221-BW1.F1	D71-WB1.W1	Belt scale at stockpile (stacker) Belt scale after crusher limestone Belt scale after crusher shale Plant weigh bridge: Raw material added after crusher weigh scale 211-BW1
	Output t/h		???		201+TPH+LIMEST	A,not I,cond.25%	211+TPROD+LIMEST			
200+TPROD.U+RM	Planned production volume (Year)				201+TPROD.U+LIMEST			M		
200+TINV+RM	Stock				201+TINV+LIMEST		stock equalize 301+TCONS+PREBLE 201+TPROD+RM	291-ST1.L1		Level raw material stockpile
						-				
	Raw Meal Preparation									
300+KWHT+RAMEAL	Specific energy consumption		(530)		301+KWHT+RAMEAL	/	300+TPROD+RAMEAL 300+KWH+RAMEAL	3P1-1S1.J1 + 3P2...		Energy meter raw meal preparation
	Specific energy consumption mill cir		366		361+KWHT+RAMEAL	/	300+TPROD+RAMEAL			

						361+KWH	361-MD1.J1 +++		Energy meter mill, separator, fan, elevator, press (group 361, 341)
	Power absorbed		322			A.cond.25%	341-RP1.J1		Power roller press
	Power absorbed		307, 333			A.cond.25%	361-MD1.J1		Power mill motor
	Power absorbed		356			A.cond.25%	361-SR1.J1		Power mill separator
	Power absorbed		358			A.cond.25%	361-VE1.J1		Power mill fan
300+MJ+TF	Preheating				301+MJ+OIL	+ x	351+MJ+OIL 351+TPROD+OIL	351-FL1.F1 L00-CVN-OIL	oil feed traditional Raw mill 1 oilflowmeter Specific net calorific value oil (kcal/kg)
300+TCONS+RMFEED	Volume consumed				301+TCONS+RMFEED	Int		331-WF0.F1	Raw Mill1 weighfeeder total fresh feed (wet)
300+TINV+RAMEAL	Stock					-	stock equalize 400+TCONS+KIFEED 300+TPROD+RAMEAL	391-3S1.L1	Level raw meal silo
300+TPROD+RAMEAL	Raw Meal Preparation Volume	7.3.8.4			301+TPROD+RAMEAL	Int or Int		391-BW1.F1	Raw Mill1 raw meal belt scale transport to silo
						+	301+TCONS+PREBLE	331-WF1.F1	Raw Mill1 weighfeeder mixture (limestone + clay)
						x		311-MOIST-PREBLE	Moisture Mixture
						+	301+TCONS+LIMEST	331-WF2.F1	Raw Mill1 weighfeeder corrective 1
						x		X00-MOIST-LIMEST	Moisture Corrective 1
					300+TCONS+SAND	+	301+TCONS+SAND	331-WF3.F1	Raw Mill1 weighfeeder corrective 2
						x		X00-MOIST-SAND	Moisture Corrective 2
						+	301+TCONS+KIDUST	431-FM1.F1	Kiln feed
						x	301+RATIO+KIDUST	M	Ratio Kiln Dust in Rawmeal (include ash content)
									Auxiliary Furnace
300+TPROD.U+RAMEAL	Planned production volume (Year)				301+TPROD.U+RAMEAL			M	
	Output t/h		???		301+TPH+RAMEAL	A,not l,cond.25%	301+TPROD+RAMEAL		
	Residue %		???		301+R90+RAMEAL	A		391-R90-RAMEAL	Shiftlab
			???		301+LS+RAMEAL	A,S		391-LS-RAMEAL	XRF
			???		301+SR+RAMEAL	A,S		391-SR-RAMEAL	XRF
			???		301+AR+RAMEAL	A,S		391-AR-RAMEAL	XRF
	Moisture content		???		301+MOIST+RMFEED	A		331-MOIST-RMFEED	Chemlab
									moisture raw mix feed
	raw mill inlet temperature							361-RM1.T1	
	raw mill outlet temperature							361-RM1.T2	
	raw mill inlet pressure							361-RM1.P1	
	raw mill outlet pressure							361-RM1.P2	
	Clinker Production								

400+AVAG+CLINKE	Availability Index	8.2.2.1 4		401+AVAG+CLINKE	/	* 100 ?? A00+HOURC 401+HOUR+CLINKE			TIS internal, total running hour (calender time) kiln running
400+AVAN+CLINKE				401+AVAN+CLINKE	- /	* 100 ?? E00+HOUR A00+HOURC 401+HOUR+CLINKE	E10-1S1.E1		Voltage at incomer, No energy available or other external downtime available time kiln running
	kiln running hour (actual running time) internal downtime external downtime total available time maintenance during external downtime			401+HOUR+CLINKE	and or - -	> 25% , stop <10% or main drive stop running hour equalize 401+HOURI+CLINKE 401+HOURC+CLINKE A00+HOURC 401+HOURM+CLINKE	431-FM1.F1 461-MD1.M1:R M M M		kiln feed > 25% kiln main drive running external stop time (external or planned, but not maintenance) available time maintenance time during external downtime
	kiln stoppages			401+COUNT+CLINKE	and	> 25% , stop <10% or main drive stop	431-FM1.F1 461-MD1.M1:R		kiln feed > 25% kiln main drive running
400+KWHT+CLINKE	Specific energy consumption		531	401+KWHT+CLINKE	/	401+TPROD+CLINKE 400+KWH+CLINKE			Energy meter clinker production
400+KWHTUP+CLINKE	Specific Electric Energy Consumption up to Clinker Specific energy consumption kiln	8.2.2.6	366??	461+KWHT+CLINKE	/	see Graph 8.2.2.6 401+TPROD+CLINKE 461+KWH			Clinker Production volume Energy meter kiln, dedusting, fan, cooler (group 461, 421, 441, 471)
	Specific energy consumption cooler		366??	471+KWHT+CLINKE	/	401+TPROD+CLINKE 471+KWH			Energy meter cooler (471)
	Power absorbed		???		A,cond.25%		471-VE1.J1		Power kiln fan
400+LCTUP+CLINKE	Specific Actual Cost of Clinker	8.2.2.2 4			/	400+TPROD+CLINKE			Clinker Production volume
400+LCTUP+FUEL	Total Fuel Cost	8.2.2.2 3	X		/	400+TPROD+CLINKE			Clinker Production volume
400+MJT+CLINKE	Specific Thermal Energy Consumption Kiln	8.2.2.9	X		/	400+TPROD+CLINKE 461+MJ+CLINKE			Clinker Production volume Total Energy Kiln without Preprocess

400+MJTUP+CLINKE	Specific Thermal Energy Consumption up to and including Clinker Production	7.3.8.1 6			401+MJ+FUEL 401+MJ+TF	+ x or x + x	481+MJ+COAL 481+TPROD+COAL 481+MJ+COAL 481+TPROD+COAL 481+MJ+OIL 481+TPROD+OIL	481-RF1.F1 481-CVN-COAL 481-WF1.F1 (L31-WF1.F1) L00-CVN-COAL 481-FL1.F1 L00-CVN-OIL		Fine coal feed, indirect firing Kiln 1 rotary weighfeeder coal Specific net calorific value coal, measured at burner pipe Direct firing Coal Mill1 weighfeeder Specific net calorific value coal, wet, measured at coal mill inlet oil feed traditional Kiln 1 oilflowmeter Specific net calorific value oil (kcal/kg)
400+MJ+AF	Alternative Thermal Energy Consumption	7.3.8.1 7			401+MJ+AF	+ x	451+MJ+TYRE 451+TPROD+TYRE	451-WF1.F1 451-CVN-TYRE		Tyre feed into precalciner Kiln 1 weighfeeder tyre into precalciner Specific net calorific value tyre
401+MTBF+CLINKE	Mean Time Between Failure	8.2.2.1 8			401+MTBF+CLINKE 401+COUNT+CLINKE	/ +1 -	401+COUNT+CLINKE 401+HOUR+CLINKE 401+COUNTE+CLINKE 401+COUNT+CLINKE	M		kiln internal stops Kiln running hour external influenced stops (external or planned)
400+OEEG+CLINKE	Gross Overall Equipment Efficiency Total=weighted average per BDP	8.2.2.1 7		X	401+OEEG+CLINKE	*	/100 401+AVAG+CLINKE 401+TPROD+CLINKE			Availability Index Production Rate Index
400+OEEN+CLINKE	Net Overall Equipment Efficiency Total=weighted average per BDP	8.2.2.1 6		X	401+OEEN+CLINKE	*	/100 401+AVAN+CLINKE 401+TPROD+CLINKE			Availability Index Production Rate Index
401+PRI+CLINKE	Production Rate Index	8.2.2.1 5			401+PRI+CLINKE	/	*100 401+TPYSTD+CLINKE 401+TPROD+CLINKE			Standard Clinker Capacity Volume by BDP Clinker Production volume

400+TEE+CLINKE		8.2.2.1 1							
400+TCONS+KIFEED	Volume consumed				401+TCONS+KIFEED	Int		431-FM1.F1	Kiln1 raw meal feed flow meter
400+TINV+CLINKE	Stock					- - -	stock equalize 401+TPROD+CLINKE 400+TPURTR+CLINKE 600+TSHIP+CLINKE 500+TCONS+CLINKE	491-3S1.L1	Level Clinker Silo Clinker shipped
400+TPYSTD+CLINKE	Standard Clinker Capacity Volume by BDP Clinker 3 days average	7.3.8.1 1			401+TPYSTD+CLINKE 401+BDP+CLINKE	* 0.85 or 400.0- OEEN max or	401+TPROD+CLINKE	M	3 days Average Max value
400+TPROD+CLINKE	Clinker Production volume	7.3.8.5		X	401+TPROD+CLINKE	Int or Int + x or + x + x	491-BW1.F1 401+TCONS+KIFEED 401+PERC+CLINKE 401+TCONS+KIFEED 481+TPROD+COAL	431-FM1.F1 M 431-FM1.F1 431-LOI-KIFEED 481-WF1.F1 481-LOI-COAL	Kiln1 clinker weigher transport to silo Kiln1 raw meal feed flow meter Kiln 1 Raw Meal / Clinker Factor Chem lab loss on ignition including moisture? Kiln Coal weighfeeder Loss of ignition coal, measured at burner pipe
400+TPROD.U+CLINKE	Planned production volume (Year)				401+TPROD.U+CLINKE			M	
400+TPURTR+CLINKE	Clinker Purchased/Transferred	7.3.8.6				+	400+TPURCH+CLINKE 400+TTRANS+CLINKE	D71-WB1.W1 D71-WB1.W1	Plant weigh bridge: receiving of clinker Plant weigh bridge: receiving of clinker
400+TSR+FUEL	Thermal Substitution Rate	8.2.2.1 2					see Graph 8.2.2.12		
	Output t/h		???		401+TPH+CLINKE	A,not int, cond.25%	401+TPROD+CLINKE		
	Environment, dust				401+TEMI+DUST	calc	conditioned with	421-2N1.Q1	Kiln Stack, environment measurement
	Environment, sulphur dioxide				401+TEMI+SO2	calc	>80%	431-FM1.F1	
	Environment, nitrogen dioxide				401+TEMI+NOX	calc	daily average, limit		
	Environment, volatile organic components				401+TEMI+VOC	calc	cumulated year to day		
	Environment, carbon monoxide				401+TEMI+CO	calc	see AVG		
	Environment, oxygen				401+TEMI+O2	calc			
	Environment, hydrogen chloride				401+TEMI+HCL			manual, lab, year	

	Environment, ammonia Environment, heavy metals Environment, dioxin, furanes Environment, benzene HLC (Linkman) % automatic running time		???	401+TEMI+NH3 401+TEMI+HM 401+GEMI+DF 401+TEMI+C6H6 461+PERC	%		4C1-2G1.C1	HLC (Linkman) % automatic running time
	Cement Grinding							
500+AVAG+CEM	Availability Index	8.2.2.1 4		501+AVAG+CEM	/	* 100 A00+HOURC 501+HOUR+CEM		available time mill running hour
500+AVAN+CEM	maintenance during stoppages External downtime			501+AVAN+CEM	+ - /	* 100 501+HOUR ???? 501+HOURC A00+HOURC 501+HOUR+CEM	M M	available time mill running hour (actual operating time)
	mill running hour (actual operating time) internal downtime external downtime total time			501+HOUR+CEM	and or - -	> 25% , stop <10% or main drive stop running hour equalize 501+HOURI 501+HOURC A00+HOURC	531-WF1.F1 561-MD1.M1:R M M	clinker feed > 25% Mill main drive running available time
500+CF+CEM	Clinker Factor at plant	8.2.2.1	X	501+COUNT+CEM 500+CF+C13	and calc /	> 25% , stop <10% or main drive stop *100 501+TPROD+C13 501+TCONS+CLINKE	531-WF1.F1	clinker feed > 25% Mill 1, Cement Type 1 (incl. Mixing of Slag see 8.2.2.1) Mill 1 Clinker Feed for Type 1
500+KWHT+CEM 500+KWHTUP+CEM	Specific Electric Energy Consumption Cement Grinding Specific Electric Energy Consumption Cement Specific energy consumption mill	8.2.2.7 8.2.2.8	534 489	501+KWHT+C13 561+KWHT+C13	/	see Graph 8.2.2.7 see Graph 8.2.2.7 501+PRI+CEM 561+KWH+C13	561-1S1.J1 +++	Cement Grinding Volume Energy meter mill, seperator, fan, elevator, press (group 561, 541), Integration per type of cement
	Power absorbed Power absorbed Power absorbed		322 307, 333 356		A,cond.25% A,cond.25% A,cond.25%		541-RP1.J1 561-MD1.J1 561-SR1.J1	Power roller press Power mill motor Power mill separator

	Power absorbed		358			A.cond.25%		561-FN1.J1		Power mill fan
500+MJ+TF	Preheating				501+MJ+OIL	+	551+MJ+OIL			oil feed traditional
500+MJT+CEM	Specific Thermal Energy Consumption Cement Grinding	7.3.8.1 7				x	551+TPROD+OIL see Graph 7.3.8.16	551-FL1.F1		Cement mill 1 oilflowmeter
								L00-CVN-OIL		Specific net calorific value oil (kcal/kg)
501+MTBF+CEM	Mean Time Between Failure	8.2.2.1 8			501+MTBF+CEM					
500+OEEG+CEM	Gross Overall Equipment Efficiency Total=weighted average per BDP	8.2.2.1 7			501+OEEG+CEM	*	/100 501+AVAG+CEM 501+PRI+CEM			Availability Index Production Rate Index
500+OEEN+CEM	Net Overall Equipment Efficiency Total=weighted average per BDP	8.2.2.1 6			501+OEEN+CEM	*	/100 501+AVAN+CEM 501+PRI+CEM			Availability Index Production Rate Index
501+PRI+CEM	Production Rate Index Total=weighted average per BDP	8.2.2.1 5			501+PRI+CEM	/	*100 501+BDP+CEM 501+TPROD+CEM			Standard Cement Capacity Volume by BDP Cement Production volume
500+LCT+CEM	Specific Actual Cost of Cement Grinding	8.2.2.2 5				/	500+TPROD+CEM			Cement Grinding Volume
500+LCTUP+CEM	Specific Actual Cost of Cement	8.2.2.2 6				/	500+TPROD+CEM			Cement Grinding Volume
500+LCVTUP+CEM	Specific Actual Cost of Cement	8.2.2.2 7				/	500+TPROD+CEM			Cement Grinding Volume
500+LCITUP+CEM	Specific Actual Cost of Cement	8.2.2.2 9				/	500+TPROD+CEM			Cement Grinding Volume
500+TPYSTD+CEM	Standard Cement Capacity Volume by BDP	7.3.8.1 2			501+TPYSTD+C13 501+BDP+C13	* 0.85 or 500-OEEN max or	501+TPROD+C13			3 days Average Max value
500+TPROD+CEM	Cement Grinding Volume	7.3.8.7		X	501+TPROD+C13 500+TCONS+CLINKE 500+TCONS+NAGYPS	Int or Int + + x +	501+TCONS+CLINKE 501+TCONS+NAGYPS 501+TCONS+LIMEST	591-BW1.F1 531-WF1.F1 531-WF2.F1 K00-MOIST-NAGYPS 531-WF3.F1 K00-MOIST-LIMEST		Cem Mill1 belt scale transport to silo Cem Mill1 weighfeeder clinker Cem Mill1 weighfeeder gypsum Moisture Gypsum Cem Mill1 weighfeeder additive 1 Moisture Additive Limestone

	Chemical additives g/t		???	501+RATI+C13	/ 1000 Int	501+TPROD+C13			Additive pump [l/h], (Grinding aid)
	Blaine		???	500+BLAINE+C13	A		531-PU1.F1		Phys lab
	Output t/h		???	501+TPH+C13	A, not int, cond.25%	501+TPROD+C13			
500+TPURTR+ CEM	Cement Purchased/Transferred	7.3.8.8				500+TPURCH+C13 500+TTRANS+C13		D71-WB1.W1 D71-WB1.W1	Plant weigh bridge: receiving of cement Plant weigh bridge: receiving of cement
500+TINV+CEM	Stock			500+TINV+C13	- -	stock equalize 501+TPROD+C13 500+TPURTR+ CEM 600+TSHIP+C13	590-3S1.L1		Level Cement Silos Cement consumed in shipping station
500+VARI+CEM	Variation of Cement Mortar Strength	8.2.2.1 3		500+28CSA.V+C13	V(monthly)		501-28CSA-C13 601-28CSA-C13	H61-5N1.I1	Compressive strength, main product, daily composite sample from cement mill 1 sample at packing
500+TCONS+CEM	Cement Grinding Volume consumed			530+TCONS+CMFEED	Int		531-WF0.F1		Cement Mill1 weighfeeder total fresh feed (wet)
							561-FM1.F1 561-BE1.J1 561.BM1.T1		volume of returns elevator power cement temp
	Shipping Station								
600+TSHIP+CLINKE	Clinker Shipped	7.8.9.2		600+TSHIP+CLINKE					
600+TSHIP+CEM	Cement Shipped	7.8.9.3		600+TSHIP+C13					
(700+CFEX+CEM)	Extended Clinker Factor (company level only)	8.2.2.2							
	Plant General Total								
A00+LCIT+CEM	Specific Investment to Maintain Productive Capacity	8.2.2.2 9			/	400+TPYSTD+CLINKE			Standard Clinker Capacity Volume by BDP
A00+LCTUP+CEM	Specific Actual Cost of Cement	8.2.2.2 6		X	/	500+TPROD+CEM			Cement Grinding Volume
A00+LCVT+CEM	Specific Variable Actual Cost of Cement	8.2.2.2 7		X	/	500+TPROD+CEM			Cement Grinding Volume
	Plant Management								
C00+MANHT+CEM	Personnel Productivity	8.2.2.4			/	see Graph 8.2.2.4			Cement Grinding Volume
	Electrical Energy								
E00+LCTUP+CEM	Specific Cost of Electric Energy, variable cost only- high tariff / low tariff	8.2.2.2 0		X	/	500+TPROD+CEM		Tarif Structure	Cement Grinding Volume

	Maintenance								
G00+LCTUP+CEM	Specific Maintenance cost	8.2.2.1 9			/	500+TPROD+CEM			Cement Grinding Volume
	Traditional Fuel								
L00+KWHT+COAL	Specific energy consumption		418		L01+KWHT+COAL	/	L01+TPROD+COAL L01+KWH+COAL	see Graph 7.3.8.16 LP1-1S1.J1	Coal mill Production Volume Energy meter coal mill preprocess
L00+LCTUP+TF	Traditional Fuel Cost	8.2.2.2 1			/	400+TPROD+CLINKE			Clinker Production Volume
L00+TPURCH+TF	Fuels Volume traditional								
L00+TINV+TF					L00+TINV+COAL	stock equalize	L01-3M1.L1		Level coal storage
L00+MJTUP+CLINKE	Specific Thermal Energy Consumption up to and including Clinker Production	7.3.8.1 6				see Graph 7.3.8.16			
	Mineral Components (MIC)								
T00+TPURTR+MIC	Mineral Components (MIC) Purchased	7.3.8.9				T91+TPURCH+SLAG		D71-WB1.W1	Plant weigh bridge: receiving of mineral components
	Alternative Fuel								
V00+LCTUP+AF	Alternative Fuel Cost	8.2.2.2 2			/	400+TPROD+CLINKE			Clinker Production volume
V00+TINV+AF					V00+TINV+	stock equalize	L01-3M1.L1		Level coal storage

??? not yet defined or additional info in HARP HTD
 calculated at different location of this sheet
 401 requires multiple calculation for different production lines
 C13 requires multiple calculation for different materials
 or different type of calculation depending on availability of PCS input signal
 M manual input
 values needed for HRM report (harmonized monthly report)
 values needed for ATR report (annual technical report)

9. CHANGE INDEX

Date	Type of change	Who
18.09.2000	HTD: not TIS values eliminated.	
	HTD: MAC parameters like OEE etc added for Cement Grinding	
	HTD: Clinker Factor 500.0-PERC calculated per cement type	
	HTD: Planned values (volumes and hours) added	
	HTD: Stocks added (for equalising)	
	Other HTD: updated	
21.09.2000	Info Type: List updated, sorted	
	HTD: Absorbed Power added (ATR)	
	HTD: Colors for HRM and ATR	
	HTD: 400/500-AVAG/N updated	
29.09.2000	HTD: Changed Naming for Energy up to Cement (E00.0 > 500.T) and adapted to calculation sheet	
	HTD: Specific Energy (ATR line 366) calculated per cement type	
	HTD: Volume consumed added (for KIWI Test case tool, main)	
	HTD: TMAX changed to TSTD	
03.10.2000	HTD: new TBDP best demonstrated practice	
	HTD: TSRA changed to TSR	
	HTD: Emission data included	
	HTD: VARI, changed HTC for lab	
04.10.2000	HTD: 401.0-HOUR new definition (25%)	
	Other HTD list adapted (deleted what is included in main list)	
	Location: MIC storage (TE0), A-G refers to customer or quarry, Petcoke, alternative raw materials, MIC preparation, Corrective preparation, receiving of cement	
	Materials: TF<->FU, Petcoke = TF, delete fine coal, ASTM cements, etc.	
05.10.2000	Analysis Definition: various	
	HTD: Adapt to new material definitions. Delete .X at end of HTD	
	Correct 400.0-PROD	
	HTD: Eliminate column HTC LAB	
10.10.2000	Correct CC 100 / 200 TONS = TWET	
	update thermal energy	
	KWHO and KWHT reorganised according HTC	
	include Linkman and main process values	
11.10.2000	include ATR grinding aid, blaine, screen, chemical characteristics	
	HTD:A00.0-TONS corrected (without MIC)	
	HTD: update thermal energy (L00 and V00)	
	update descriptions, report columns	
16.10.2000	calculation definitions (I,A,S)	
	TPUR for correctives and additives, stock equalize calculation	
	A00: TPUR	
	MTBF, AVAN, calculation	
17.10.2000	Info type.I doble definition eliminated (internal = N)	
	Material list and Analysis list updated	
	L = TPUR	
	.0 and .X eliminated	
18.10.2000	Update HTD with new material and Identifier	
	Definition RM, Fuel added in Material list	
	Changed Inventory = Y	
	New: TPH (not TONS.A)	
23.10.2000	New HRS etc.(not HOUR)	
	Extension for Identifier eliminated = several new codes	
	06.11.2000 Material>: Bags, extension: high, low	
	10.11.2000 Environment Identifiers, names updated	
19.12.2000	Remarks to Location: Definition of Suppliers, Abbreviation Day = D	
	Identifier: TONS generally renamed, include TSHIP eliminate TONSPLA and HOURP	
	Extension: planned Year, month, week, last estimate	
	HTC list adapted to include Material code	
11.01.2001	Grouping of Materials adapted to KIWI Definitions	

Date	Type of change	Who
	Identifier: MJTR and MJAL eliminated	
23.01.2001	Identifier: BDP eliminated (see TPHBDP), TEMI added	
	Material: Environmental data added	
	Identifier Analysis separated from Identifier HTD	
	HTC list: Column HTC material / location specific combined into one column	
	Identifier: new definitions for EMI values	
25.01.2001	Kiwi-HTD with HTC: condition 30% changed to 25%	Kin
	Kiwi-HTD with HTC: TPURCH-CLINKE, TPURCH-CEM, TRANS-CLINKE, TPURCH-CEM combined to TPURTR-CLINKE, TPURTR-CEM	Kin
16.02.2001	Grouping of Materials adapted to KIWI and PCS Definitions	Kin
20.03.2001	Identifier TPWWAY and TSWWAY added to the list	Kin
26.04.2001	Location Extension with .D..and extended to 8 Characters, Update HAC no delimiter between 123456, re-arrange list, Legend for AMC, MAC, HTD (grouping of Identifier)	Hi
	Material:OIL, WOIL, PETCOK type H, L Extension type for packing	
	Code for Year = A	
	Example coal included in location	
	Update .ppt	
	Identifier Analysis units according international code	
28.05.2001	Update fuel HTD's (material fuel related except for specific values) Adapt to Holcim	Hi
30.05.2001	Identifier list adapted to KIWI terminology:	Ffe/Hi
	New Code HOUA, CF (former PERC general)	
	deleted: KCALKG, LC, PARA	
	Code change: HOURN into HOURM, PCEX into CFEX	
	units adapted	
	Calculation HTC codes adapted (all with material code)	
11.06.2001	Update Identifier Analyse with PH,BR,CL,F,I,CAOFA,CACO3,MGCO3,HEAT12, HEAT24,HEAT2D,CLPOT,FPOT,DENS,DENSBU,NA2OP,K2OP,NA2OEP H,IR,TOC,PCB,FLASHP,RADACT,R90W,R90G etc. ,WRET, Text to WR Extension I,O,T ; Text 1CS1	AH/Hi
15.06.2001	Material and Analysis Identifier with additional attribute R Identifier group	AH/Hi
20.06.2001	Identifier analyse: new colum "analysis" refering to "analysis definition"	AH
	Various changes in columns "analysis", "equipment" and "workplace"	
	CAOFC, CL.T, S.T, C.O	
	Analyse -> Analysis parameter	
	additional identifiers in XRF_CLINKER, XRF_HOTMEAL, XRF_SLAG	
	deleted: STIT, TOC	
29.06.2001	Extension Analysis x,y,z local change ppm to mg/kg comment for mg/l change MJ/kg to MJ/t (KIWI)	AH/Hi
25.07.2001	Identifier HTD LITER into LICONs and LIPROD	Ffe/Hi
	Material, packing type: 0 = empty (containment)	
	New Identifier AOX, BTX, PAH	
31.07.2001	Materials (OTHER e.g. water, lubricants etc. not finalised)	Ffe/Hi
28.08.2001	TPROBY for Byproducts, Kiwi manual. TEXTR, MJTUP, RMC, AGGR, VSHIP, VSOLD, ACCTL, AFRS or TEE, VTRUCK, LCV, LCTKM, ALL, TDBAG, TDBULK	Hi
28.08.2001	Kiwi-HTD list: 400-TPURTR-CLINKE (corrections), new 400-TSR-CLINKE (not L00)	Hi
26.09.2001	EMPTY as material (not extension as defined 25.07)	Ffe/Hi
08.10.2001	Extension Packing Pattern added	Ffe/Hi
20.10.2001	Local Material list Holcim/CH added	Ffe
24.10.2001	Material Extension with physical properties, Fuels List adapted to KIWI 8.2.2.12	Ffe
	Identifier: C = Calculated, new folder Unit Identifier units adapted	
	SIFUME = MIC, MIC adapted to KIWI 7.3.4.1, Other Material, ORM eliminated,	
	HTD deleted: 7.3.8.10 / 13 / 14 / 15 / 18	
	100-TEXTR-RAW, T00-TPURTR-MIC, 400-MJT-CLINKE	
26.10.2001	HTD HOUR adapted to MAC / Kiwi definitions (Idle etc)	Hi
	LCTUP, KWHT, MJTUP, adapted according KIWI refinement workshop	Hi
01.03.2002	Identifier Analyse updated with AH	MBR
07.05.2002	Materials WPHARM, WCHEM, C13HS., GLASSW = GLASS, Extension Material unique letters.Sling = G, CLINKA, CLINKD, ASBEST	Hi

Date	Type of change	Who
30.05.2002	Units mbar	Hi
08.08.2002	L00-KWHT-COAL (ATR 418) added	Hi
29.08.2002	Packing type 2 letter code, (PL, SL, ST, WR)	Hi
02.09.2002	Delimiter changed from - to +	Hi
16.09.2002	HOUR1	ALD/Hi
20.09.2002	BITUMS (SHALE), WSAND, eliminate LISTMA, CLAYSH, LABCEM EXP	AH/Hi
10.10.2002	Extension Identifier B,D,N, P; BDP, TPHBDP ; DENSI ; Extension Location : 5W, 5D, 5S (labo to avoid confusion with Electrical HAC Component)	MBR/Hi
29.10.2002	New Identifiers for Analyses (LIMS)	Ffe
10.12.2002	New Identifier Analysis, Name to Description	AH/DHJ/Hi
13.12.2002	MAGNET, SIFUME ARM, GRAVEL, AGGRH, AGGRL, MORTAR, QUILIM - PCS Codes added, Packing type from Attribut Material to Location (HAC Coste Center 6)	Hi
07.01.2003	PCS code added to Material More Location Examples, K00, 600 with packing type etc. New Identifier HTD for MAC (PRI52 etc) for internal/external transport, for BDP	Hi
15.01.2003	Material code cement adapted (C13N etc.) New, revised list Identifier Analyse	DHJ/Hi DHJ/Hi
23.01.2003	Revised list Units	DHJ/Hi
14.02.2003	TPURUP and TCONUP added	MBR
04.03.2003	TPURSH, Autofilter to all lists	Ffe/Hi
26.05.2003	CO2 added to Material, KEMINT, KEMIGT, TEMIN, TEMIG (Identifier HTD - Emission), new unit kg/t	MBR /Hi
17.07.2003	STRIP, EXPLOS, GEXPLT, COMQR, COMEMI, LC > RC, OEE = HTD, RCMT, RCET, RCFT, RCFAT,RCFTT, RCCT, RCCVT	MBR /Hi
09.03.2005	TYREF, new and settled extensions for Identifier	MBR/ALD/Ffe
09.01.2006	Extension Identifier HTD new definition, Identifier Analyse concrete lab measures added, measures for microscopy added,	MBR (learnings from Lat
19.07.2007	Plant names (Company and Abbr.) adapted to latest ATR: Cesko, Hungaria, Slovensko, Hrvatska, Srbija. Identifier HTD: -Added: CEF, Comment to TPROD; ACCMTI; COUN; COUN2; COUN24; COUNM; COUNMA; COUNP; COUNPD; HOUPMR; HOUPMR.1; HOURMA; HOURPD; HOURUP; INJUR; LOCAT; PLANAT; TLIFR; TLISR Identifier Extension: - Introduction of a 2nd extension which represents the time, therefore time values in the description deleted from the 1st extension. - Deleted: B Cumulated year to date; V End of year forecast - Added: M/N Max/Min to Limits; T Forecast; B Budget; W Weighted; X Manual; K Calculated; R Rolling average - 2nd Extension: Y Year; M Month; W Week; D Day; S Shift; H Hour; U 13Weeks; V 52 Weeks Identifier Analysis: - Correction on NA2O; 3Cxx (wrong description, double entries) - Various Identifier Analysis added - Deleted because Identifier already exists: AR.S; C.T; C.O; CL.T; CMS.T; CVG.W; I.I; I.O; I.T; LIMEST.X; LS.S; MOIST.T; Material: - Extension added: W Wet; F Fine; C Coarse/Granulated - Material added: EFFSEW; EFFWAT; SBF; SUGAR; TYREF; ZCARBON; ZSCL - Examples added Units: - Added: µStrain; mg/m2/day; µg/m2/day; J/g/h; l/m³; m²/kg; NTU; ngTEQ/Nm3	PME
28.03.2008	Identifier, Identifier Analysis and Materials list for China added	PME
20.08.2008	Extensions G & B for Identifier Analysis added Merged Materials and Identifier analysis of different countries to one standard Updated to new Manual Format	PME