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Heraeus

Ceramic Colours – Partner for Your Success

Ceramics

Onglaze

Series	H 64	H 63	H 57	H 56	H 55 Metallic
Substrate (Major substrate type bold printed)	**Porcelain** Bone China Earthenware Tile Enamel	**Porcelain** Bone China Earthenware Tile Enamel	**Porcelain** Bone China Earthenware Tile Enamel	**Bone China** Earthenware Tile Enamel	**Porcelain** **Bone China** Earthenware Tile Enamel
Typical items to be decorated	Tableware Giftware	Tableware Giftware	Tableware Giftware	Tableware Giftware	Tableware Giftware
Properties of the colours					
Firing Range (for major substrate type)	780–880 °C	720–850 °C	800–900 °C	820–900 °C	820–880 °C
Lead free (rest lead contamination < 600 ppm)	—	—	•	•	•
Four-Colour-Process-System (4C)	•	•	•	•	—
PANTONE list with mixing recommandations	•	—	—	•	—
Achievable properties of finished decorations					
Dishwasher resistant *)	—	—	—	—	—
Dishwasher durable *)	•	•	•	•	•
Lead release within limits of DIN 51032	•	•	•	•	•
Lead release within limits of Proposition 65	—	—	•	•	•
Acetic acid resistant	•	•	•	•	•
Reference picture of the range					

■ Lead free (rest lead contamination < 600 ppm)
■ Lead containing

Inglaze

Series	H 67	H 84
Substrate (Major substrate type bold printed)	**Porcelain** Bone China Earthenware Tile	**Porcelain** Bone China Earthenware Tile
Typical items to be decorated	Tableware Giftware	Tableware Giftware
Properties of the colours		
Firing Range (for major substrate type)	1180–1250 °C	1180–1280 °C
Lead free (rest lead contamination < 600 ppm)	—	•
Four-Colour-Process-System (4C)	—	—
PANTONE list with mixing recommandations	—	•
Achievable properties of finished decorations		
Dishwasher resistant *)	•	•
Dishwasher durable *)	—	—
Lead release within limits of DIN 51032	•	•
Lead release within limits of Proposition 65	—	•
Acetic acid resistant	•	•
Reference picture of the range		

Tile

Series	H 6000
Substrate (Major substrate type bold printed)	**Tile**
Typical items to be decorated	Tile
Properties of the colours	
Firing Range (for major substrate type)	900–1150 °C
Lead free (rest lead contamination < 600 ppm)	—
Four-Colour-Process-System (4C)	—
PANTONE list with mixing recommandations	—
Achievable properties of finished decorations	
Dishwasher resistant *)	
Dishwasher durable *)	
Lead release within limits of DIN 51032	
Lead release within limits of Proposition 65	
Acetic acid resistant	•
Reference picture of the range	

Glass

Opaque

Series	H 15	H 32	H 53000	H 52 Metallic
Substrate (Major substrate type bold printed)	**Soda-Lime Glass** (Ceramics) Enamel	**Soda-Lime Glass** Lead Crystal (Ceramics)	**Soda-Lime Glass** (Ceramics)	**Soda-Lime Glass** (Ceramics)
Typical items to be decorated	Drinking Glass Giftware Cosmetic Container	Drinking Glass Giftware Cosmetic Container	Giftware Cosmetic Container One Way Bottle	Drinking Glass Giftware Cosmetic Container One Way Bottle
Properties of the colours				
Firing Range (for major substrate type)	580–630 °C	490–580 °C	580–630 °C	580–630 °C
Lead free (rest lead contamination < 600 ppm)	—	—	•	•
Four-Colour-Process-System (4C)	•	•	—	—
PANTONE list with mixing recommandations	•	—	—	—
Achievable properties of finished decorations				
Dishwasher resistant *)	—	—	—	—
Dishwasher durable *)	•	—	—	—
Lead release within limits of DIN 51032	—	—	•	•
Lead release within limits of Proposition 65	—	—	•	•
Acetic acid resistant	•	—	—	—
Reference picture of the range				

Transparent

Series	H 31
Substrate (Major substrate type bold printed)	**Soda-Lime Glass**
Typical items to be decorated	Giftware
Properties of the colours	
Firing Range (for major substrate type)	540–600 °C
Lead free (rest lead contamination < 600 ppm)	—
Four-Colour-Process-System (4C)	—
PANTONE list with mixing recommandations	—
Achievable properties of finished decorations	
Dishwasher resistant *)	—
Dishwasher durable *)	—
Lead release within limits of DIN 51032	—
Lead release within limits of Proposition 65	—
Acetic acid resistant	—
Reference picture of the range	

Organic

Series	OGG 91
Substrate (Major substrate type bold printed)	**Glass** Ceramics Stainless Steel
Typical items to be decorated	Drinking Glass Giftware Cosmetic Container
Properties of the colours	
Firing Range (for major substrate type)	180 °C
Lead free (rest lead contamination < 600 ppm)	•
Four-Colour-Process-System (4C)	•
PANTONE list with mixing recommandations	•
Achievable properties of finished decorations	
Dishwasher resistant *)	—
Dishwasher durable *)	•
Lead release within limits of DIN 51032	•
Lead release within limits of Proposition 65	•
Acetic acid resistant	•
Reference picture of the range	

	H 64	H 63	H 57	H 56	H 55 Metallic	H 67	H 84	H 6000	H 15	H 32	H 53000	H 52 Metallic	H 31	OGG 91
Basic Flux	H 64050	H 63050 **)	H 57050	H 56050*		H 67050	H 84050		H 15000	H 32000	H 53000			
Overprinting Flux	H 64065				H 55050	H 67053								
Mixing White	H 64006		H 57006	H 56005		H 67001	H 84002				H 53002		H 31008	
Opaque White	H 64008		H 57008	H 56001		H 67008	H 84001		H 15007	H 32007	H 53006		H 31009	OGG 91001
Light Yellow	H 64333 / 101C	H 63333 / 101C	H 57303 / 101C ❖	H 56333 / 101C		H 67333 / 100C	H 84333 / 102C		H 15330 / 393C	H 32330 / 616C	H 53332 / 603C	H 52324 / 871C M	H 31330 / 395C	OGG 91335 / 3955C
		H 63324 / 100C ❖			H 55324 / 1215C M	H 67336 / 106C			H 15332 / 120C	H 32320 / 120C	H 53323 / 871C	H 52325 / 872C M	H 31339 / 3955C	OGG 91304 / 395C
Yellow	H 64324 / 100C ❖	H 63336 / 122C		H 56334 / 122C					H 15304 / 116C ❖	H 32332 / 611C			H 31331 / 131C*	OGG 91350 / 109C
Cadmium Yellow	H 64335 / 109C*	H 63335 / 109C		H 56314 / P. Yellow C* ❖		H 67335 / P. Yellow C		H 6033 / P. Yellow C	H 15335 / 116C	H 32335 / 116C	H 53335 / 605C			
							H 84351 / 135C**			H 32304 / 605C ❖				
Orange					H 55325 / 1245C M	H 67535 / 137C	H 84551 / 1495C**		H 15234 / 143C	H 32339 / 110C	H 53577 / 166C	H 52326 / 873C M		OGG 91570 / 166C
	H 64776 / 021C*	H 63776 / 021C			H 55326 / 8962C M	H 67575 / 165C			H 15704 / 1797C ❖	H 32535 / 717C				
Light Red					H 55222 / 876C M	H 67775 / 179C	H 84778 / 179C**	H 6078 / 179C	H 15535 / 1585C	H 32575 / 1525C		H 52222 / 8762C M		OGG 91770 / 1665C
					H 55671 / 8900C M	H 67776 / 1795C			H 15575 / 172C	H 32773 / 179C				
									H 15773 / 485C	H 32777 / 186C				
Dark Red	H 64778 / 187C*	H 63778 / 187C			H 55774 / 8902C M	H 67778 / 1805C			H 15777 / 1797C	H 32704 / 180C ❖	H 53778 / 188C	H 52774 / 8861C M		OGG 91778 / 193C
RedBrown	H 64723 / 1815C ❖			H 56723 / 147C		H 67725 / 471C	H 84721 / 1525C			H 32778 / 704C	H 53727 / 181C			OGG 91220 / 483C
Dark Brown	H 64228 / 4695C ❖		H 57228 / 477C	H 56282 / 4975C		H 67229 / 725C	H 84276 / 1685C	H 6029 / 490C	H 15228 / 175C	H 32228 / 4625C				
Brown	H 64226 / 478C ❖	H 63226 / 470C	H 57226 / 7517C			H 67228 / 153C	H 84234 / 153C	H 6028 / 1605C	H 15226 / 1685C	H 32226 / 175C			H 31224 / 1405C	
	H 64225 / 471C		H 57225 / 7414C											
			H 57601 / 486C	H 56252 / 1535C										
Ochre	H 64351 / 130C	H 63234 / 7413C	H 57351 / 1235C	H 56351 / 1385C	H 55250 / 8005C M	H 67351 / 7511C				H 32234 / 145C	H 53223 / 139C	H 52233 / 871C I		
					H 55321 / 468C M									
Light Pink		H 63670 / 204C		H 56670 / 204C	H 55220 / 8021C M	H 67672 / 700C	H 84672 / 700C		H 15503 / 1565C	H 32070 / 692C				
	H 64671 / 204C		H 57671 / 182C	H 56601 / 693C					H 15072 / 169C	H 32071 / 486C				
Pink		H 63672 / 228C	H 57672 / 7433C	H 56603 / 205C	H 55663 / 8063C M			H 6072 / 702C		H 32672 / 688C				
	H 64673 / 221C	H 63673 / 215C	H 57673 / 1945C											
Purple	H 64674 / 194C	H 63674 / 194C ❖	H 57674 / 194C ❖	H 56674 / 194C		H 67674 / 702C	H 84674 / 702C						H 31662 / 689C	OGG 91604 / 234C ❖
	H 64604 / 198C													
	H 64675 / 208C		H 57675 / 208C ❖	H 56675 / 208C			H 84675 / 687C*						H 31665 / 222C	OGG 91660 / 239C
	H 64676 / 183C			H 56676 / 1905C						H 32676 / 511C			H 31664 / 683C	
Dark Purple		H 63678 / 209C		H 56678 / 209C		H 67676 / 689C*	H 84676 / 689C*	H 6074 / 202C				H 52976 / 8122C I	H 31666 / 195C*	
				H 56614 / 208C* ❖										
Violet				H 56969 / 269C		H 67994 / 258C	H 84993 / 522C	H 6094 / 258C		H 32965 / 2622C		H 52911 / 8163C I	H 31965 / 2695C	
Purple Lilac	H 64663 / 681C	H 63667 / 228C												
		H 63668 / 229C		H 56695 / 229C										OGG 91960 / 275C
Cobalt Blue	H 64198 / 2758C**	H 63196 / 2758C	H 57190 / 2748C	H 56198 / 2768C		H 67119 / 2767C	H 84118 / 274C***	H 6018 / 2748C	H 15118 / 2748C	H 32118 / 2758C				
	H 64197 / 2738C**	H 63195 / 2738C*	H 57193 / 2768C	H 56197 / 2748C			H 84117 / 2766C		H 15115 / 2718C	H 32117 / 286C			H 31117 / 2758C	
						H 67118 / 288C	H 84116 / 2756C			H 32116 / 293C				
Royal Blue	H 64015 / 2728C**	H 63014 / 2728C*	H 57014 / 2738C	H 56117 / 2738C					H 15116 / 293C	H 32104 / 293C ❖			H 31114 / 293C*	OGG 91116 / 293C
Medium Blue						H 67115 / 2727C				H 32112 / 542C		H 52114 / 8182C I		
									H 15114 / 285C	H 32113 / 2727C	H 53113 / 661C			
Cyan	H 64124 / 308C ❖	H 63124 / 308C ❖	H 57124 / 3015C ❖	H 56124 / 308C ❖					H 15104 / 285C ❖					OGG 91104 / P. Cyan C ❖
Light Blue	H 64115 / 2727C		H 57103 / 2905C	H 56103 / 279C	H 55112 / 278C M	H 67112 / 2727C	H 84111 / 2985C	H 6014 / 299C	H 15110 / 299C	H 32143 / 631C			H 31111 / 659C	
						H 67114 / 2985C			H 15112 / 285C	H 32141 / 549C				
										H 32107 / 632C				
Blue Green	H 64418 / 322C	H 63418 / 322C	H 57418 / 322C	H 56417 / 3165C	H 55413 / 8283C M	H 67418 / 322C	H 84417 / 3035C	H 6048 / 316C	H 15143 / 319C	H 32148 / 3305C			H 31442 / 324C	
									H 15417 / 322C	H 32446 / 3435C				
									H 15446 / 339C	H 32412 / 3282C				
Moss Green	H 64447 / 364C	H 63447 / 575C	H 57447 / 364C	H 56442 / 357C	H 55424 / 8680C M	H 67447 / 575C	H 84447 / 575C	H 6049 / 3298C	H 15449 / 349C	H 32449 / 349C		H 52437 / 8722C I	H 31449 / 357C	OGG 91410 / 334C
		H 63448 / 3305C		H 56446 / 357C			H 84446 / 342C							
Yellow Green			H 57436 / 346C		H 55440 / 8323C M	H 67435 / 362C	H 84435 / 362C		H 15434 / 356C	H 32433 / 367C	H 53441 / 3425C	H 52424 / 8721C M	H 31444 / 382C	
	H 64434 / 360C	H 63434 / 576C	H 57434 / 7489C						H 15436 / 377C	H 32445 / 364C			H 31445 / 377C	
Pastel Green						H 67443 / 578C	H 84412 / 346C						H 31443 / 367C	
Grey					H 55009 / 427C M							H 52009 / 8420C M		
					H 55010 / 420C M							H 52882 / 8380C M		
					H 55881 / 8001C M	H 67842 / 414C	H 84842 / 414C					H 52881 / 877C M	H 31883 / 5773C	
	H 64885 / 431C	H 63885 / 429C	H 57885 / 7540C	H 56883 / 432C	H 55885 / 877C M	H 67814 / 431C	H 84814 / 430C	H 6085 / 5405C	H 15884 / 429C	H 32884 / 430C		H 52885 / 8421C M	H 31885 / 432C	
Black	H 64888 / P. Black C ❖	H 63888 / P. Black C	H 57888 / P. Black C ❖	H 56891 / 5255C		H 67888 / P. Black C	H 84888 / P. Black C	H 6088 / P. Black C	H 15886 / 426C	H 32886 / Black C	H 53887 / Black 4C2X			OGG 91888 / P. Black C ❖
	H 64804 / Black 3 C ❖	H 63889 / P. Black C ❖		H 56814 / P. Black C ❖					H 15804 / 426C ❖	H 32804 / Black C ❖				
Screen for PANTONE definition:	Steel VA 325 mesh * Steel VA 270 mesh ** Steel 2x VA 325 mesh *** Polyester 150–27	Steel VA 325 mesh * 2x VA 325	Steel VA 325 mesh	Steel VA 325 mesh * Polyester 150SX	Steel VA 270 mesh	Steel VA 220 mesh	Steel VA 270 mesh * Steel VA 400 mesh ** Steel VA 180 mesh *** Polyester 90–44	Polyester 90T	Steel VA 220 mesh	Steel VA 220 mesh	Polyester 70–55	M: Steel I: Steel VA 325 mesh	Steel VA 220 mesh * Polyester 150SX	Polyester 120–31

Legend:

- • Achievable characteristic depending on the substrate and manufacturing conditions
- — Not achieved characteristic
- *) Dishwasher durable (resistant): Decoration withstands 500 (1000) washing cycles essentially without damage. Tests roughly following the test washing programme of the German Standards Committee for Material Testing (FNM).
- M Metallic colour. Interference metallic colours of series H 55 are also available.
- I Interference metallic colour
- ❖ Four-Colour-Process
- P. Process (Yellow/Cyan/Black C)
- **) Basis flux for series H 63 is H 63050, except for cadmium containing colours. In these cases, H 64053 is recommended.

Explanation of the number system:

H xxyyz
- xx series
- yy main colour and colour tendency (see beside)
- z counter

e.g. H 57418:
Series H 57, main colour: green, colour tendency: blue

- 0 white or flux
- 1 blue
- 2 brown
- 3 yellow
- 4 green
- 5 orange
- 6 purple
- 7 red
- 8 black
- 9 violet

Remark:

Please note that the colour table is printed on paper and that the appearance of colours on the decorated substrate may differ from the appearance of colours as shown in the above colour table. In particular the substrate to be decorated as well as the manufacturing and firing conditions exercise an influence on the appearance of the colours. Therefore Heraeus recommends to carry out tests before the start of the production.

The above colour table shows the major colour series of Heraeus Ceramic Colours available in April 2006. Due to constant product development, Heraeus cannot guarantee the continuous availability of all colours shown in the above colour table.

If you require further assistance of Heraeus Ceramic Colours, please contact your local Heraeus sales representative. Information on the world wide sales organisation of Heraeus Ceramic Colours and further information on our products are published on the homepage of Heraeus Ceramic Colours:

www.heraeus-ccd.com