

Product Model Change Notification

Date: June 15, 2018

Subject: CAPATUE introduces a new global product model system for its Organofunctional Silane products

Dear Customer & Partner,

Thank you for your business and continuous supports to CAPATUE. This letter is to inform you that we are changing the product model for our organofunctional silanes. The new product model includes letters and characters to indicate the organofunctional groups, alkoxy groups and other chemical structures of the organofunctional silanes. This change also allows CAPATUE to unify its product model in both domestic and global market.

The original KH- series silane coupling agent is named by the Chinese Academy of Sciences in the 1970s, however this nomenclature only contains 6 typical silane products from KH-540 to KH-590. After decades of development, we have developed dozens of different the silane coupling agents, the old KH- model is no longer applicable for this new situation. So now a systematic nomenclature is in need and we are pleased to introduce a new global product model system for our Organofunctional Silane products. The details are as below for your information:

1. Conversion table that cross-references old product model to the new product model.

Old Model	New Model	Chemical Name	Cas No.
Amino Silanes			
KH-540	SCA-A10M	3-Aminopropyltrimethoxysilane	13822-56-5
KH-550	SCA-A10E	3-Aminopropyltriethoxysilane	919-30-2
KH-902	SCA-A10F	3-Aminopropylmethyldiethoxysilane	3179-76-8
KH-792	SCA-A20M	[3-(2-Aminoethyl)aminopropyl]trimethoxysilane	1760-24-3
KH-794	SCA-A20E	N-(3-Triethoxysilylpropyl)ethylenediamine	5089-72-5
KH-602	SCA-A20T	3-(2-Aminoethylamino)propyldimethoxymethylsilane	3069-29-2
KH-113	SCA-A30M	3-[2-(2-Aminoethylamino)ethylamino]propyl-trimethoxy silane	35141-30-1
KH-558	SCA-A64M	N-(n-Butyl)-3-aminopropyltrimethoxysilane	31024-56-3
KH-557	SCA-A66M	3-(N-Cyclohexylamino)propyltrimethoxysilane	3068-78-8



KH-170	SCA-A67W	Bis(trimethoxysilylpropyl)amine	82985-35-1
KH-270	SCA-A67X	Bis(triethoxysilylpropyl)amine	13497-18-2
KH-569	SCA-A69M	3-(Phenylamino)propyltrimethoxysilane	3068-76-6
Epoxy Silanes			
KH-560	SCA-E87M	3-Glycidoxypropyltrimethoxysilane	2530-83-8
KH-561	SCA-E87E	3-Glycidoxypropyltriethoxysilane	2602-34-8
KH-578	SCA-E87F	3-Glycidoxypropylmethyldiethoxysilane	2897-60-1
KH-566	SCA-E86M	2-(3, 4-Epoxy cyclohexyl)ethyl]trimethoxysilane	3388-04-3
KH-567	SCA-E86E	2-(3, 4-Epoxy cyclohexyl)ethyl]triethoxysilane	10217-34-2
Acryl Silanes			
KH-570	SCA-R74M	3-Methacryloxypropyltrimethoxysilane	2530-85-0
KH-571	SCA-R74E	3-(Triethoxysilyl)propyl methacrylate	21142-29-0
KH-572	SCA-R74T	3-Methacryloxypropylmethyldimethoxysilane	14513-34-9
KH-575	SCA-R75M	3-(Trimethoxysilyl)propyl acetate	59004-18-1
Sulfur Silanes			
KH-590	SCA-S89M	3-Mercaptopropyltrimethoxysilane	4420-74-0
KH-580	SCA-S89E	3-Mercaptopropyltriethoxysilane	14814-09-6
KH-69	SCA-S69X	Bis[3-(triethoxysilyl)propyl]tetrasulfide	40372-72-3
KH-75	SCA-S75X	Bis[3-(triethoxysilyl)propyl]-disulfide	56706-10-6
Vinyl Silanes			
KH-171	SCA-V71M	Vinyltrimethoxysilane	2768-02-7
KH-151	SCA-V71E	Triethoxyvinylsilane	78-08-0
KH-172	SCA-V71C	Vinyl tris(2-methoxyethoxy) silane	1067-53-4
KH-173	SCA-V71P	Vinyltri(isopropoxy)silane	18023-33-1
Ureido Silanes			
KH-152	SCA-U60M	1-[3-(Trimethoxysilyl)propyl]urea	23843-64-3
KH-160	SCA-U60E	Ureidopropyltriethoxysilane	23779-32-0
Isocyanato Silanes			
KH-135	SCA-Y25M	3-Isocyanatopropyltrimethoxysilane	15396-00-6
KH-125	SCA-Y25E	3-Isocyanatopropyltriethoxysilane	24801-88-5
Alkyl Silanes			
KH-131	SCA-K01M	Methyltrimethoxysilane	1185-55-3
KH-132	SCA-K01E	Methyltriethoxysilane	2031-67-6
KH-331	SCA-K03M	n-Propyltrimethoxysilane	1067-25-0
KH-332	SCA-K03E	n-Propyltriethoxysilane	2550-02-9
KH-831	SCA-K08M	Octyltrimethoxysilane	3069-40-7



KH-832	SCA-K08E	Octyltriethoxysilane	2943-75-1
KH-1231	SCA-K12M	Dodecyltrimethoxysilane	3069-21-4
KH-1631	SCA-K16M	Hexadecyltrimethoxysilane	16415-12-6
BTMSE	SCA-K02W	1,2-Bis(trimethoxysilyl)ethane	18406-41-2
BTSE	SCA-K02X	1,2-Bis(triethoxysilyl)ethane	16068-37-4
α-Silanes			
α -42	SCA-α A42E	(N-Phenylamino)methyltriethoxysilane	3473-76-5
α -43	SCA-α A43E	Dichloromethyltriethoxysilane	19369-03-0

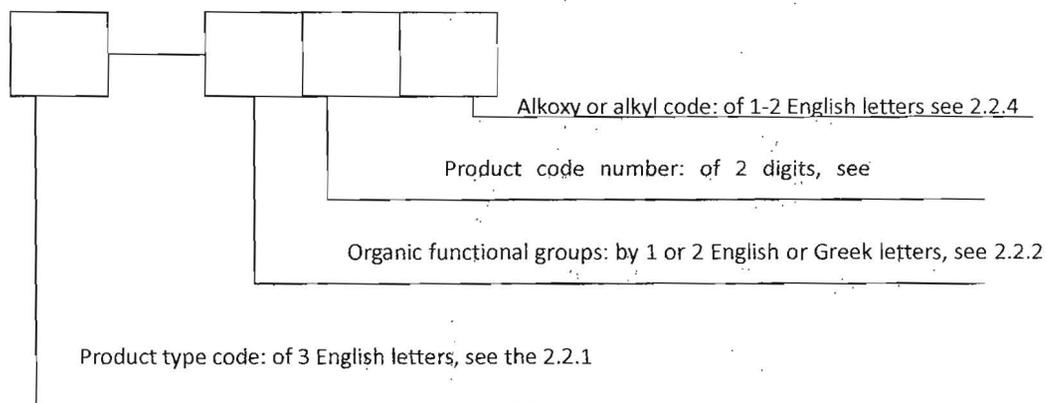
2.The Raw of Naming

2.1 Basic Principles

The model must be unique; the same model can not be used for two products. The naming of product or name change must be presented by the production department, can be used only after the sign of Marketing Department and Standard room registration.

2.2 The way of naming

The way of naming please see the below chart:



2.2.1 Product type code

It is composed of three English letters, using the first letter of Silane Coupling Agent "SCA" as the code of Silane Coupling Agent products.

2.2.2 Organic functional groups

It is composed of 1-2 English or Greek letters, English letters are basically adopted by the beginning letters of **Organic functional groups**, if any repetition, will use other letters of the English word to instead. Its specific code and its symbol meaning, see table 1.

TABLE 1 : Organic functional groups.

Short of the organic functional group	the organic functional group
A	<u>A</u> mino
U	<u>U</u> reido
E	<u>E</u> poxy
R	<u>A</u> cryl
V	<u>V</u> inyl
S	<u>S</u> ulfur
Y	Isoc <u>Y</u> anato
C	<u>C</u> hloro
F	<u>F</u> luoro
K	<u>A</u> lky
P	<u>P</u> henyl
α A	α <u>A</u> mino
HA	<u>H</u> ydrolysed <u>A</u> mino
OV	<u>O</u> ligomeric <u>V</u> inly

2.2.3 Product code number

It is composed of two digits, try to avoid repetition. Generally related to the information of corresponding products abroad (mainly refer to the model of Momentive, amino, epoxy, Acryl, Ureido, Isocyanato, Sulfur Silanes, etc., such as the SCA - A10E corresponds to A - 1100, the SCA - E87M corresponds to A - 187, the SCA - R74M corresponds to A - 174, the SCA - V71M corresponds to A - 171, the SCA - S89M corresponds to A 189-189, SCA - S69X corresponding to Si69, etc.), or the number of functional groups of silane (such as the number of amino in amino silane, single amino, double amino and three amino named respectively A10, A20 and A30, fluorine base number of fluoro silane, such as the F13C8 in SCA - F13C8M said thirteen n-ethylperfluorooctanesulfonamido), or the number of carbon atoms in alkyl silane (such as the SCA - K08E ,08 said octyl , ie 8 carbons) .

2.2.4 Alkoxy or alkyl code

It is composed of one or two English letters, basically the initial letters of alkoxy or alkyl .If can not adopt this method, It is name based on the number of carbon atoms, its meaning as shown in the table 2.

Table 2 : Alkoxy or alkyl code

Alkoxy or alkyl code	Alkoxy or alkyl code
L	Trichloro-
M	Trimethoxy
E	Triethoxy
T	Methyldimethoxy
F	Methyldiethoxy
C	Tri(2-methoxyethoxy)
P	Triisopropoxy
B	Triisobutoxy
W	Tri methoxy double silane
X	TRI ethoxy double silane

3. Model change of undisclosed chemicals or mix products are as follows:

Old Model	New Model	Comments
KH-302	PCA-302	Categorized in the "powder coupling agent"
KH-302E	PCA-302E	Categorized in the "powder coupling agent"
KH-302F	PCA-302F	Categorized in the "powder coupling agent"
KH-450	ADP-W450	Categorized in the "adhesion promoter"
KH-460	ADP-W460	Categorized in the "adhesion promoter"
KH-470	ADP-S470	Categorized in the "adhesion promoter"
KH-501	SCA-501	
KH-502	SCA-502	
KH-508	SCA-508	
KH-552	SCA-552	
KH-553	SCA-553	

"PCA" stands for Powder Coupling Agent ; "ADP" indicates Adhesion Promoter

We ask that you reference the new product model beginning with new orders dated July 1st 2018. CAPATUE will not accept orders for the existing product model beyond September 30, 2018. After this date, only orders with the new part number structure will be accepted.

The model change work is start from July 1st 2018, and finish on September 30, 2018. In the transitional period, both old and new product models can occur simultaneously or separately on the product labels, invoices, COA, delivery receipts, product brochures, websites and other medias and materials (such as KH-550 labels may be SCA-A10E (KH-550)). Old customers can change gradually, new customers

should all use the new models, and all customers will use the new model only after the transitional period.

Please reference the above conversion table that cross-references existing product model to the new product model. CAPATUE will also provide a conversion feature in its online cross reference tool, scheduled to launch on July 15th, 2018. This tool will be available at our official website www.capatue.com.

Our company promise: The product model change does not involve any product quality & service issues, the old and new products perform the same types of product quality standards, production process and testing standards, nothing changed expect the product model.

CAPATUE is committed to working closely with you to minimize any impact this change may have, and thanks a lot for your great help and collaboration!

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Submission Date: June 15, 2018



Note: For any questions, please contact the Product Line Manager for Organofunctional Silane at info@capatue.com or your CAPATUE Sales Contact.



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