

# ***Wastewater Treatment Chemicals List***

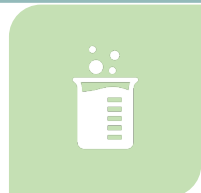


# Gracess business segments



**WASTEWATER  
TREATMENT  
CHEMICAL  
SOLUTION**

**WASTEWATER TREATMENT PROCESS DESIGN, SPECIAL HYDROPHILIC  
ULTRAFILTER,  
HIGH EFFICIENCY BIO-CARRIER**



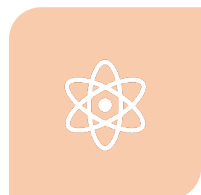
SPECIAL SURFACTANT

SECONDARY ALCOHOL SURFACTANT  
HIGH EFFICIENCY SCOURING AND DISPERSING AGENT



TEXTILE AUXILIARIES

TEXTILE CHEMICALS, DAILY USE AND SPECIAL FUNCTIONAL CHEMICALS



NANO-LEVEL  
PRODUCTS

SILVER PHOTOCATALYST  
DURABLE ANTIBACTERIAL AND DEODORIZED



SILICONE  
COMPOUNDS

SILICONE COMPOUNDS AND EMULSIFIED TECHNIQUE  
LOW D4 ECO-FRIENDLY SOFTENERS





## Gracess New Solutions

### Best for water reuse and UF membrane system

Industry type
Textile & Garment Industry
Dyes & Paints Industry
Electroplating Industry
PCB Industry
Electronics industry
Food Industry
High COD Industry
Using membrane filtration system

Traditional Treatment method
PAC
PAM
Washing by Strong acid & Strong alkali
Typical silicone defoamer
Sodium Hydrosulfite
Formaldehyde Condensate Decolorant
Sodium Chlorate

Coagulation Aids Agent EAC-50
Multipurpose & oil-water separating agent EAC-NN
Scale inhibitor + Membrane cleaner EAC-Na4
High concentration defoamer CD-1170MS
Decolorizing agent HB-10DN
COD removal agent HB-220D
COD degradation agent HB-C2

Massively enhancing the coagulation performance and speed. It helps to reduce the dosage of PAC & PAM, which can reduce the sludge volume.

It can effectively reduce the amount of sludge and the moisture content of the sludge. Perfect oil-water separating ability. Silicone oils, lubricant oils, sewing thread cone oil ...can use it.

EAC-Na4 provides perfect performance in chelating, dispersing, and descaling. It can replace the traditional phosphate, EDTA, and NTA... products. Environmentally friendly. Suitable for various membranes, such as flat membrane, RO membrane, hollow fiber membrane...etc.

It doesn't clog the membrane. No sedimentation, No APEO. High-temperature resistance and strong alkali resistance. Rapid defoaming speed and long-lasting effect. High compatibility that can be used with various kinds of chemical formulations.

Effective to reactive / dispersed / acid / cationic / fluorescent dyes. No need to use PAC & PAM. No color redox occurs. It doesn't increase COD. No sludge generates.

Best for removing COD from wastewater. It takes only 30 min - 1 hour retention time. Powder type, easy to use.

Best for COD degradation from wastewater. Liquid type. TiO<sub>2</sub>-based chemicals can degrade the microbial and remove the odor. Sunlight or UV light can enhance performance more.



產品名稱  
Name 助凝劑EAC-50  
Coagulation Aids Agent EAC-50

產品外觀  
Appearance 淡黃色透明液體  
Light yellowish transparent liquid

酸鹼性  
pH value 弱鹼性水溶液 weak alkaline aqueous  
(pH : 7.7)

優點  
Advantage

適用廢水種類多、可與各種絮凝劑並用，增加絮凝效果、降低藥劑使用量、減少污泥產生  
有油水分離效果、對部分金屬的處理有幫助如:鋅

Applicable to various of wastewater, can be used with many flocculants to increase the flocculation effect, reduce the amount of chemicals used, and reduce sludge generation

It has the effect of oil and water separation, and is useful for the treatment of some metals such as zinc.

注意事項  
Attention

本身有些微COD (在純水中 5 Kg/T COD : 225 ppm)

It contains slightly COD (In pure water 5 Kg/T COD : 225 ppm)

適合廢水  
Suitable target

染整廢水、化學廢水、電鍍廢水、PCB廢水...等



Textile processing, chemicals, electroplating, PCB processing wastewater...etc.



# Coagulation Aids Agent EAC-50

[ Case sharing 1 – Chemicals factory ]

- 添加少量EAC-50，就能改善絮凝，減少PAC與PAM的用量，減少汙泥。  
Adding a small amount of EAC-50 can improve the flocculation effect, reduce the amount of PAC and PAM, and reduce sludge.
- 整體藥劑量減少 56%  
The overall amount of chemicals used has been decreased by 56%.
- 汙泥量減少 > 50%  
The volume of sludge has been reduced by approximately > 50%.

樣品 Sample	原廢水 Untreated	傳統方式 Old method		新工藝 New method	
處理方式 Treatment method	N/A	PAC	+6.0 Kg/ton	EAC-50	+0.5 Kg/ton
		Adjust pH to 8		PAC	+1.5 Kg/ton
		PAM	+10.0 Kg/ton	Adjust pH to 8	
				PAM	+5.0 Kg/ton
外觀 Appearance					



# Coagulation Aids Agent EAC-50

[ Case sharing 2 – textile dyeing mills ]

- EAC-50可以幫助絮凝，讓PAC/PAM可以減量，絮凝性更好，沉澱速度快，汙泥減量，能讓COD降得更低。  
EAC-50 provides flocculation performance that can reduce the dosage of PAC/PAM. The better flocculation can also speed up the sedimentation process, reduce the volume of sludge and lower the COD.
- 整體藥劑量減少 > 80%  
The overall amount of chemicals used has been decreased > 80%.
- 汙泥量減少 > 50%  
The volume of sludge has been reduced by approximately > 50%.

樣品 Sample	原廢水 Untreated	傳統方式 Old method		新工藝 New method		
處理方式 Treatment method	N/A	Adjust pH to 9 ~ 10		Adjust pH to 9 ~ 10		
		PAC	+6.0 Kg/ton	EAC-50	+0.5 Kg/ton	
		PAM	+10.0 Kg/ton	PAC	+0.7 Kg/ton	
				PAM	+1.5 Kg/ton	
外觀 Appearance						
COD(ppm)	244	198 ( - 18.9%)		180 ( - 26.2%)		
pH	7	7		8		





產品名稱  
Name 絮凝劑EAC-NN  
Multipurpose & oil-water separation agent

產品外觀  
Appearance 灰褐色粉末  
Gray-brown powder

酸鹼性  
pH value 中性 (不溶於水)  
Neutral ( Not dissolvable in water)

優點  
Advantage

在酸性或鹼性廢水中皆可使用；絮凝力強能使汙泥團聚成塊  
不會造成堵膜；能夠作為油水分離用  
Can be used in acidic and alkaline wastewater; Strong flocculation ability can make sludge gather into clumps

注意事項  
Attention



需要攪拌較長時間才能完成絮凝，粉體投料  
The product is in powder form. It takes more time to stir to complete the flocculation process.

適合廢水  
Suitable target

染整廢水、化學廢水、電鍍廢水、PCB廢水...等  
Textile processing, chemicals, electroplating, PCB processing wastewater...etc.



- 只要稍微添加EAC-NN，就能讓絮凝效果更好，減低PAC與PAM的用量，沉降速度更快，而且污泥體積較小，COD也降得更低。With a few dosage of EAC-NN, the flocculation effect can be better, the dosage of PAC/PAM can be reduced, the sedimentation speed can be faster, and the sludge volume can be smaller, and the COD can be lower.
- 整體藥劑量減少 > 60%  
The overall amount of chemicals used has been decreased > 60%.
- 污泥量減少 > 60%  
The volume of sludge has been reduced by approximately > 60%.

樣品 Sample	原廢水 Untreated	傳統方式 Old method		新工藝 New method	
處理方式 Treatment method	N/A	PAC	+3.0 Kg/ton	EAC-NN	+0.2 Kg/ton
		PAM	+3.0 Kg/ton	PAC	+0.7 Kg/ton
				PAM	+1.5 Kg/ton
外觀 Appearance					
COD(ppm)	118	111 ( - 5.9%)		102 ( - 13.5%)	
pH	6.6	7.0		6.3	



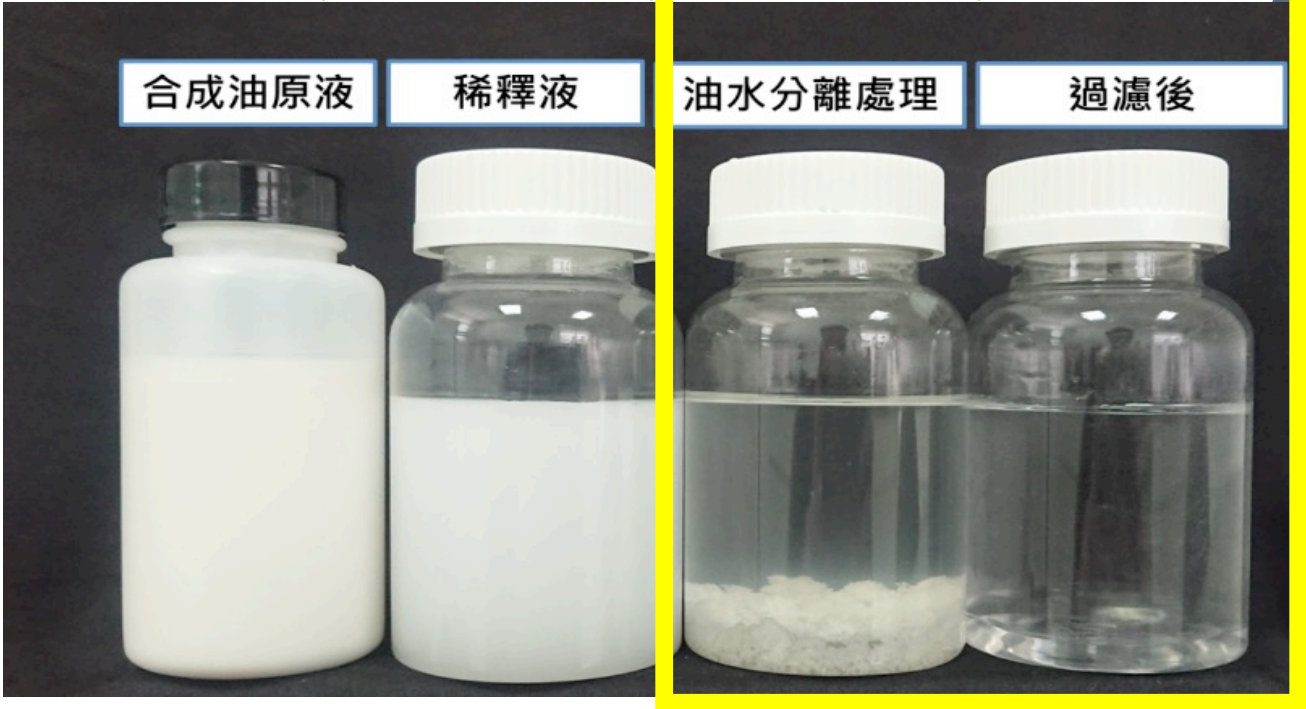


# Multipurpose & oil-water separating agent EAC-NN

[Case sharing 2 - chemical factory]

EAC-NN具有油水分離的效果，搭配EAC-50絮凝處理，水質澄清透明而且汙泥極少。

EAC-NN has the effect of oil and water separation. When EAC-50 is used with EAC-NN for flocculation treatment, the water can be clear and transparent with very little sludge.

樣品 Sample	原樣品 Original sample	稀釋後 After dilution	處理後 After treatment	過濾後 After filtration
處理方式 Treatment method	合成油原液 Synthetic oil	Diluted liquid (x 200 times)	EAC-NN +1.2 Kg/ton EAC-50 +1.0 Kg/ton	Filtration
外觀 Appearance	 <p>The photograph shows four bottles of liquid. The first two bottles, labeled '合成油原液' (Synthetic oil) and '稀釋液' (Diluted liquid), contain opaque, milky-white liquids. The next two bottles, labeled '油水分離處理' (Oil-water separation treatment) and '過濾後' (After filtration), contain clear, colorless liquids. The '過濾後' bottle has a small amount of white sludge settled at the bottom.</p>			





產品名稱  
Name 環保型洗膜除垢劑 EAC-Na4  
Scale inhibitor + membrane cleaning agent EAC-Na4

產品外觀  
Appearance 淡黃色液體  
Light yellowish liquid

酸鹼性  
pH value >8 (原液)  
>8 ( stock liquid)

優點  
Advantage

耐高溫穩定性高、對於各種難以清洗的鈣垢或者不易清洗的設備有很好的效果，可迅速恢復膜的通量。適用於各種不同的膜的清洗且具有優異的脫鹽率，有利於中水回收再利用。無生態毒性，可以生物降解，屬於環保產品。

注意事項  
Attention

使用時每支膜的狀況各有差異，可以視需要調整。若膜阻塞嚴重時用本劑長時間浸泡，可提高還原膜的通量。可當膜的保存劑使用，避免膜乾涸造成膜的通量下降。



適合廢水  
Suitable target

染整廢水、化學廢水、電鍍廢水、PCB廢水...等  
Textile processing, chemicals, electroplating, PCB processing wastewater...etc.



# Scale inhibitor + Membrane cleaner EAC-Na4

[Case sharing – membrane cleaning agency]

#	Membrane appearance ( completely clogged ) 超濾膜外觀(完全堵塞)	Before 清洗前	1 <sup>st</sup> washing 首次清洗後	2 <sup>nd</sup> washing 第二輪清洗後	Final round 最終清洗後	Flux restore ratio 通量回復率
A		4 LMP (Pressure 40 cmHg)  < 0.1 ton/hr	9.5-10 LMP (Pressure 24 cmHg)  0.57-0.60 ton/hr	7.5 LMP (Pressure 24 cmHg)  0.57-0.60i ton/hr	10 LMP (Pressure 50 cmHg)  0.6 ton/hr	50%
B		4 LMP (Pressure 40 cmHg)  < 0.1 ton/hr	8.0-9.0 LMP (Pressure 24 cmHg)  0.48-0.54 ton/hr	8.0 LMP (Pressure 24 cmHg)  0.48-0.54 ton/hr	11 LMP (Pressure 50 cmHg)  0.66 ton/hr	65%

[Remark備註]  
New membrane flux  
全新超濾膜通量  
20LPM(Pressure 25cmHg)  
1 ton/hr

[Remark備註]  
Increasing pressure based  
on the actual on-site  
requirement  
依據現場實際需求提升壓力





產品名稱  
Name 廢水用消泡劑 CD-1170MS  
Defoamer CD-1170MS

產品外觀  
Appearance 無色透明至微濁液體  
Colorless transparent - slightly turbid liquid

酸鹼性  
pH value 6.0±1.0

優點  
Advantage

高耐酸、高耐鹼、耐高溫、相容性佳，消泡速度快、效果持久，不影響水相外觀，且可廣泛作為化學品的配方來使用。  
High acid resistance, high alkali resistance, high temperature resistance, good compatibility, fast defoaming speed, long-lasting effect, does not affect the appearance of the water phase, and can be widely used as the formulation of chemicals.

注意事項  
Attention

請搖晃均勻後再使用  
Please ensure that the contents are stirred thoroughly before using.

適合廢水  
Suitable target

染整廢水、化學廢水、電鍍廢水、PCB廢水...等  
Textile processing, chemicals, electroplating, PCB processing wastewater...etc.



# Defoamer CD-1170MS

[ Case sharing – text dyeing mill ]

## Before use

A large amount of foam generated which overflowed from 2<sup>nd</sup> floor to the 1st floor



## During use

CD-1170MS concentration is 50%. Recommend to dilute into 2% for using.



## After use

Foam height has dropped significantly, when the height rises again, then add additional amount.





產品名稱  
Name 廢水用脫色劑 HB-10DN  
Decolorizing agent HB-10DN

產品外觀  
Appearance 米白色顆粒  
Off-white particles

酸鹼性  
pH value 溶於水呈鹼性  
Alkaline (dissolved in water)  
(0.2%wt · pH : 10.2)

優點  
Advantage 用量少、能快速去除廢水的顏色、不太會增加COD、沒有汙泥、不含甲醛、可處理氨氮  
Less dosage, fast color removal of wastewater, almost 0 COD, no sludge, no formaldehyde, can remove ammonia nitrogen




























注意事項  
Attention 溶解速度稍慢、如添加過量時會產生沉澱物  
Dissolve speed is relatively slow and produce precipitates if excess the suitable dosages.

適合廢水  
Suitable target 染整廢水、化學廢水、電鍍廢水、PCB廢水...等  
Textile processing, chemicals, electroplating, PCB processing wastewater...etc.



# Decolorizing Agent HB-10DN    HB-10DN [ Case sharing 1 – Most common dyestuff of textile industry]

Suitable for decolorization of various common dyes.

	Disperse dyes 1	Disperse Blue	Disperse dyes 2	Acid Yellow	Acid Blue	Reactive Red	Reactive Black	Reactive Blue	Reactive Yellow
Original dyeing wastewater									
+ Others decolorizing agent 0.1Kg/T									
+ HB -10 DN 0.1Kg/T									

Remark: Please note that the decoloration effect may not be obvious with natural colors, such as caramel coloring.



# Decolorizing Agent HB-10DN


## [ Case sharing 2 – Paint factory wastewater ]

After diluting the wastewater containing fluorescent red dye and treating it with conventional PAC and PAM, the water quality improved, but a large amount of sludge with a fluorescent red color remained and could not be completely decolorized even after using formaldehyde dicyandiamide decolorant.

However, by using a small amount of PAC and PAM with HB-10DN decolorizing agent, the water can be almost completely decolorized while reducing the amount of sludge.

This method also increases the COD removal rate to 79.3%.


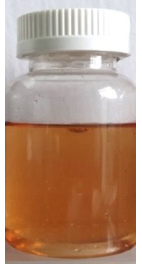







To increase the sludge settling speed, the amount of PAM can be increased.

樣品 Sample	原廢水 Untreated	傳統方法 Conventional method		現有做法 Current method		Gracess 新工藝	
處理方式 Treatment method	Diluted 500 times	pH to 8~9		pH to 8~9		pH to 7~8	
		PAC	+4 Kg/T	PAC	+4 Kg/T	HB-10DN	+ 0.4 Kg/T
		PAM	+ 3 Kg/T	PAM	+ 3 Kg/T	PAM	+ 1.5 Kg/T
外觀 Appearance							
COD	2036	538 (-73.5%)		865(-57.5%)		421(-79.3%)	
pH	7.56	9.01		8.99		7.12	





- HB-10DN在1分鐘內已有脫色效果，提高用量能加快脫色速度。  
HB-10DN has a decolorization effect within 1 minute, increasing the dosage can accelerate the decolorization speed.
- 3小時後已明顯脫色，劑量低的顏色較深，劑量高的顏色較淡。  
After 3 hours, the color is obviously decolorized, the low dose sample is darker color and the high dose sample is lighter color.
- 16小時後，顏色已完全去除，兩種劑量的脫色效果接近。  
After 16 hours, the color was completely removed and the decolorization effect of the two doses was similar.
- 可根據排放要求或處理時間需求調整HB-10DN用量。The dosage can be adjusted according to the requirements or treatment time.

樣品 Sample	原廢水 Untreated	新工藝 1 New method 1	新工藝 2 New method 2
處理方式 Treatment method	N/A	HB-10DN +0.3Kg/ton	HB-10DN +0.5Kg/ton
外觀 Appearance (Let stand 1 min)			
外觀 Appearance (Let stand 3 hours)			
外觀 Appearance (Let stand 16 hours)			





產品名稱  
Name COD去除劑HB-220D  
COD removal agent HB-220D

產品外觀  
Appearance 透明晶體  
Transparent Crystals

酸鹼性  
pH value 溶於水呈中性  
Neutral in water  
(0.2wt% · pH : 7.0)

優點  
Advantage 溶解速度快、反應快、COD去除率高，適合用在排放前後針對COD做最後的處理  
Fast dissolution, quick reaction, high COD removal rate, suitable for final treatment of COD before discharge.

注意事項  
Attention 對於尚未處理的高COD廢水處理效能較差  
Less effective in treating high COD wastewater that has not been treated.

適合廢水  
Suitable target 染整廢水、化工廢水、金屬廢水...等  
Dyeing and finishing wastewater, chemical wastewater, metal wastewater, etc.





1

COD REMOVAL  
AGENT  
HB-220D

COD 去除劑  
HB-220D



2

ADDING TO  
WASTEWATER

投入廢水中



3

HB-220D  
DECOMPOSES  
ORGANIC  
CONTAMINANTS  
IN  
WASTEWATER  
BY REDOX  
REACTION

HB-220D 以氧化  
還原反應分解廢水  
中的有機污染物



4

LARGE  
MOLECULES OF  
ORGANIC  
CONTAMINANTS  
ARE BROKEN  
DOWN INTO  
NON-POLLUTING  
SMALL  
MOLECULES.

大分子有機污染物  
被分解成  
無污染的小分子



5

DECREASE IN  
SMALL  
MOLECULE  
OXYGEN  
DEMAND, COD  
ALSO  
DECREASES

小分子需氧量下降  
COD也隨之下降  
達到消滅COD效果



# COD removal agent HB-220D

[ Case sharing – Chemical factory ]

- 傳統工藝的汙泥很多，經由EAC-NN和EAC-50輔助可以使物泥大幅減少，而且COD能降低更多。  
The traditional method has a lot of sludge. Through EAC-NN & EAC-50, the sludge can be greatly reduced, and the COD can be lowered even more.

- 將處理好的澄清水層部分分離出來，最後再添加HB-220D，就能將COD降至100ppm以下。  
By separating the treated clarified water layer, and adding HB-220D, the COD can be reduced to be less than 100ppm.

	原廢水 Untreated wastewater	傳統工藝 Traditional method		新工藝 New method		COD處理 COD removal	
		PAC	+ 3 Kg/T (simulated)	EAC-NN	0.5 Kg/T	取新工藝處理後的上層清水 Take the upper layer of clean water after the new method.	
處理方法 Chemicals	無處理 Untreated	PAC	+ 3 Kg/T (simulated)	PAC	1.5 Kg/T	HB-220D	1.0 Kg/T
PAM				1.5 Kg/T			
外觀 Appearance							
COD (ppm)	2288	1495	1100	63			
COD去除率 COD removal rate	-	- 34.6%	- 51.9%	- 97.5%			





產品名稱  
Name 光催化COD降解劑HB-C2  
Photocatalysis COD degradation agent

產品外觀  
Appearance 白色液體  
White liquid

酸鹼性  
pH value 中性  
Neutral  
(pH7.2)

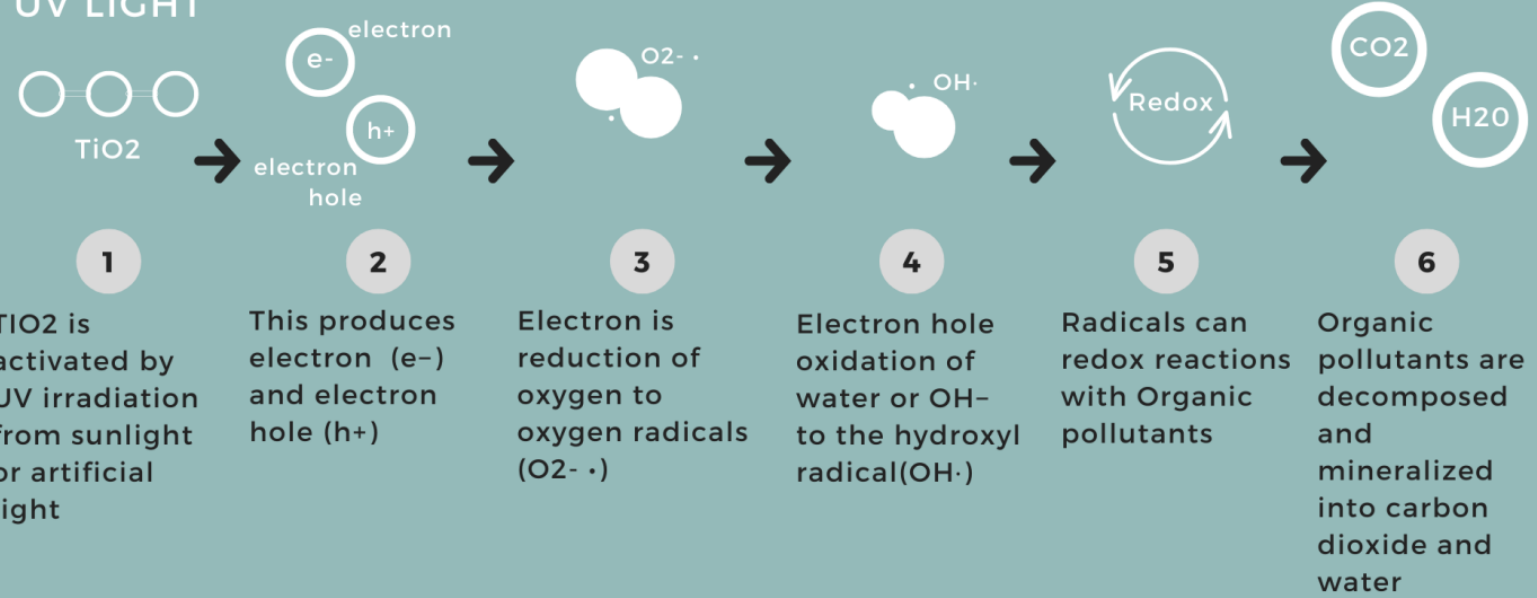
優點  
Advantage 光催化型COD降解劑，適用性高，用量低  
Photocatalytic COD degradation agent, high applicability, low dosage

注意事項  
Attention 需要反應時間較長  
Requires longer response time

適合廢水  
Suitable target 染整廢水、電鍍廢水  
Dyeing and finishing wastewater, electroplating wastewater



## UV LIGHT



TiO<sub>2</sub>以陽光或人造光紫外線照射使其活化

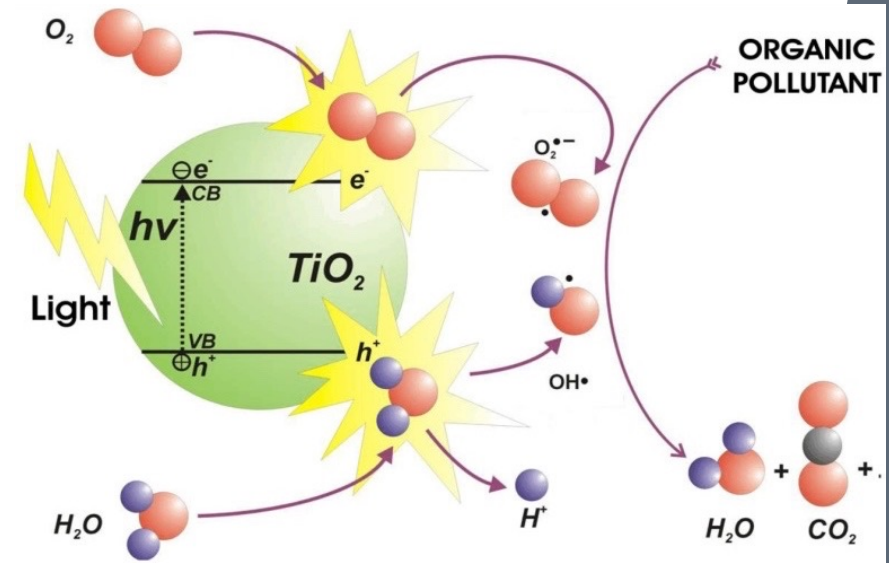
形成自由電子與電洞

自由電子與氧氣作用形成雙氧自由基O<sub>2</sub><sup>-·</sup>

電洞與水分子作用形成氫氧自由基OH·

自由基可以與有機污染物發生氧化還原反應

有機污染物被分解、礦化為二氧化碳和水



## Case sharing – Electroplating wastewater

樣品 Samples	原廢水 Original wastewater	A樣品 Sample A	B樣品 Sample B	C樣品 Sample C
處理工藝 Chemicals	未處理 Untreated	+2.4 Kg/T 硫化鈉Na <sub>2</sub> S <b>+0.01 Kg/T HB-C2</b> pH to 10.5~11	+2.4 Kg/T 硫化鈉Na <sub>2</sub> S <b>+0.05 Kg/T HB-C2</b> pH to 10.5~11	+2.4 Kg/T 硫化鈉Na <sub>2</sub> S <b>+0.1 Kg/T HB-C2</b> pH to 10.5~11
測試時間 Time	(原) COD值變化 (Original) COD change	(A)COD值變化 (A) COD change	(B) COD值變化 (B) COD change	(C) COD值變化 (C) COD change
24hr後/降解率 24hr later / removal rate	1056ppm (- 0%)	1028ppm (- 2.7%)	908ppm (-14%)	884ppm (-16.3%)
48hr後/降解率 48hr later / removal rate	1050 ppm (-0.6%)	980ppm (- 7.2%)	752ppm (-28.8%)	688ppm (-34.8%)
72hr後/降解率 72hr later / removal rate	1052 ppm (-0.4%)	432ppm (- 59%)	440ppm (-58.3%)	450ppm (-57.4)

增加用量能提高短時間內的降解率，但長時間下降解率結果相近。  
Increasing the dosage may increase the degradation rate in a short period.  
However, the degradation rate was similar over a long period.



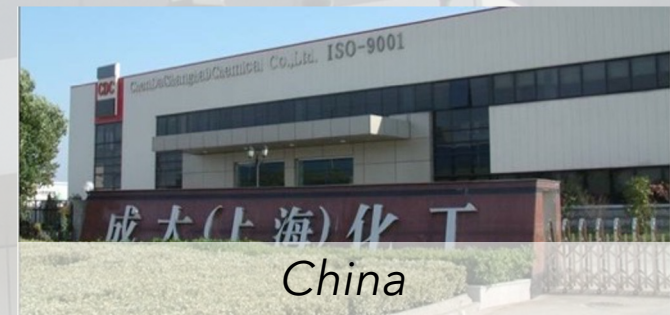
# About Gracess International Co., Ltd.

GRACESS INTERNATIONAL CO., LTD. was set up in 2013, as an affiliate company of Taiwan Yiman company (1980), Chenda (Shanghai) chemical company, and Chentai commerce. Our main field is high-tech chemical products, we promoted products to the new material application by nano-technology in the textile industry and daily use. We also provided OEM and ODM services.

CHENDA(SHANGHAI) is a Taiwan-based-owned enterprise that started to work together with Dow Corning in 1995. We helped it sell textile industry silicone products as a mediator and provided the support of products. Based on our over 40 years of specialty silicone experience and new nanotechnology, we would like to support more partners for expanding the business.



*Taiwan*



*China*



*Bangladesh*



# Gracess cooperation scheme



At Gracess, we provide support to chemical suppliers, distributors, and EPC service companies. Our services include ready-to-use chemicals, high-concentration chemicals, customized chemicals, and technical support. We dedicate to understand our users' needs and identify any challenges they may be facing.

Based on this information, we provide business partners with the most suitable solutions to help resolve any issues their customers may be experiencing.





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*Textile . Coating . Wastewater . Daily-used  
Chemical total solution*

**GRACESS INTERNATIONAL CO., LTD**

(O) +886-2-2673-3998 (F)+886-2-2673-3995

29F-3, No. 86, Sec. 1, Beixin Rd., Xindian Dist., New Taipei City 231003, Taiwan