治理技术

一种适用于高悬浮物有机废水处理的
新型厌氧装置

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摘要　本研究的厌氧反应器具有 UASB 工艺与两相消化装置的特点，将发酸酵、甲烷发酵、沉淀分离 3 个工艺过程有效地组合成一体，并利用所产生的沼气及水位变化控制进行无需外加动力与设备的自动回流搅拌，以适应于处理高悬浮物的废水，并避免堵塞、短流与浮渣板结等问题。120L反应器在35℃下处理好氧剩余污泥的试验表明，在HRT 3.53—8.57d 条件下，其有机物去除率达 51.4%—58.6%；在 HRT 为 7.5d 时，其有机负荷为 2.97kgSS/(m³·d)，COD 负荷为 3.89kgCOD/(m³·d)，平均有机物去除率为 55.3%，所产沼气含甲烷 60% 以上。

关键词　两相消化，厌氧反应器，好氧剩余污泥处理，有机废水处理。

近年来，在厌氧处理高浓度、低悬浮物有机废水方面取得了很大进步，高效厌氧反应器迅速发展，如上流式厌氧污泥床，厌氧过滤器，厌氧膨胀床等[1]。但对于悬浮物较多的废水，如鸡场、猪场、牛场废水，果蔬食品加工废水以及城市污水污泥处理等，仍采用传统厌氧消化池和厌氧接触消化工艺处理。因此，开发适宜高悬浮物有机废水的厌氧处理反应器是非常必要的。

本研究分析了多种厌氧反应器的结构，在多年深入研究 UASB 反应器的基础上，集两相消化工艺适宜处理高悬浮物废水的性能，参考日本的 BIMA（Biogas Manahl）三相一槽反应器的结构形式，并力求达到结构简单合理，操作管理方便，将产酸、产甲烷与沉淀分离工艺组合一体，设计成了新型厌氧消化装置。经过多次细致的清水流态试验示踪测试与反复修改，最终使该装置的性能达到了设计意图。在此基础上于 1990—1991 年进行了处理好氧剩余污泥的试验研究。本文主要介绍该装置的结构原理与处理好氧剩余污泥的研究结果。

1　新型厌氧消化装置的构造原理

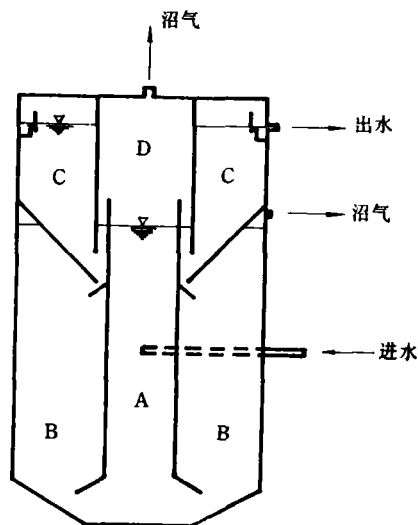新型厌氧消化装置的构造见图1。此反应器包括酸发酵区（A）、甲烷发酵区（B）、沉淀区（C）、集气室（D）4 个部分。装置的运行可分为如下 5 个步骤：

图1　新型厌氧消化装置构造示意图

（1）原水从反应器中部进入酸发酵区，在此进行水解与酸化。酸化时间由水质、水量而定。完成酸化作用的酸发酵混合液进入甲烷发酵区。此时，集气室若处于排空状态，甲烷发酵区的混合液则充满集气室。

（2）进料促进了反应器底部的搅动，已酸化的酸发酵混合液与甲烷发酵区的污泥充分接触，在甲烷菌的作用下不断生成沼气。附着沼气的混合液上升，当碰到气室与沉淀区斜板时，气体释放出来进入集气室。由于压力作用，使甲烷发酵区混合液进入沉淀区，在沉淀区进行泥水分离。随着沼气量的增加，集气室空间不断扩大，将混和液压入沉淀区，使沉淀区的水位不断上升，当达到最高水位时，出水自动排出反应器。原水则完成了厌氧发酵全过程。

（3）当集气室容积达到最大时，受液位控制的电磁阀自动开启，集气室的沼气迅速排出。

（4）在集气室气体迅速排放的同时，沉淀区的液体则进行自动回流，沉淀区的液体部分进入酸发酵区，部分进入甲烷发酵区，进入各区的比例视缝隙的大小和水位高度而定。

（5）当气室气体排空时，电磁阀自动关闭，回流搅拌也随即停止，反应器又回到开始状态此反应器排气和自动回流搅拌可以与进料同时进行，也可以分别控制。

2　新型厌氧消化器的特点

（1）集产酸、产甲烷和沉淀分离作用于一体，既充分发挥了产酸与产甲烷各菌种的作用，适宜高悬浮物废水处理，又利用沉淀分离作用使反应器内保存了大量菌种，延长了污泥停留时间，从而达到反应器高效的目的。

（2）利用厌氧消化所产生的气体的作用，该反应器达到自动回流搅拌的目的，从而减少反应器内部和外部的搅拌设备，并节省了动力和能耗。

（3）可以根据进料水质调整回流缝高度，从而调整搅拌水量的大小与分配。

（4）在运行过程中，气室与沉淀区的水位不断变化，从而避免浮渣板结与堵塞。

（5）本反应器由于酸化、甲烷化、沉淀设于一个装置中，且采用内回流搅拌，因此，热损失较一般的厌氧装置小，便于保温亦是此反应器的特点之一。

（6）本反应器结构简单，可采用地下式、半地下式建造，适于季节性、间歇性运行。

3　处理好氧剩余活性污泥试验

3.1　试验条件

试验用反应器总容积为 120L，置于 35 C 的恒温箱中，用时间控制器控制定时进料，用液位控制器控制自动回流搅拌，用煤气表计量所产生的沼气。

试验以生活污水好氧生物处理的剩余污泥为对象，该污泥的 COD 为 8.82—30.37g/L，SS 为 4.5—27.8g/L，其 VSS 与 SS 之比平均为 76.9%，溶解性 COD 占总 COD 比例平均为 8.8%，总 COD 中有 91.2% 为不溶性有机物。

根据不同的要求和特点，将运行过程分为不同时期，各时期的试验条件见表 1。

3.2　试验结果

各时期的运行结果见表 2。

表1　试验条件

类别	日期（月，日）	进料量（L/d）	HRT（d）	温度（C）	投加基质	特点
起动期	9,14			35	淀粉	培养污泥
污泥积累期	9,15--10,15	20--31.4	3.82--6	35	活性污泥	大量投加活性污泥，增加反应器污泥量。
适应期	10,16--11,25	8--33	3.53--15	35	活性污泥	逐步延长停留时间，达到稳定运行。
稳定运行期	11,26--12,23	10--16	7.5--12	35	活性污泥	具有较高的有机物去除率。

反应器中酸发酵区与甲烷发酵区上部的有 机酸含量见表3。

表2 试验结果

类别	日期 (月,日)	HRT (d)	平均产气率 (m³/(kg 有机物·d))	平均投配负荷 (kgSS/(m³.d))	平均有机物 去除率(%)
污泥积累期	9,15--10,5	4—6 ·	0.201	1.725	
适应期	10,16--11,25	3.53—15	0.289	1.753	44.379
	11,26--12,3	12	0.326	2.115	51.7
稳定运行期	12,20--12,23	8--8.57	0.428	1.745	58.65
	12,4 12,14	7.5	0.324	2.335	51.4
最大SS投配 负荷期	12,10--12,12	7.5	0.265	2.97	55.3

表3 反应器内有机酸的分析结果

日期 (月,日)	酸发酵区 (mg/L)	甲烷发酵区 上部(mg/L)
11,13	801.9	178.2
11,23	597	178.2
12,7	721.7	115.8

反应器中酸发酵区与甲烷发酵区中污泥的微生物种类(水解发酵细菌、产氢产乙酸菌、产甲烷菌)统计与产甲烷活性测定结果见表4。

表4 反应器内污泥的微生物统计与产甲烷活性

微生物种类 数量(个/ml)	酸发酵区	甲烷发酵区
水解发酵细菌	1.1×10^{13}	1.4×10^{11}
产氢产乙酸菌	3.0×10^{8}	1.6×10^{7}
产甲烷菌	3.0×10^{2}	4.0×10^{6}
最高产甲烷活性 (mlCH₄/gVSS·d)	0	120

进料和出料(出水和排泥)的细菌总数和总大肠菌群的分析结果见表5。

表5 卫生效果

日期 (月,日)	内容	进料	出水	排泥
10,25	细菌总数 (个/ml)	11×10^{8}	65×10^{6}	70×10^{6}
	总大肠菌群 (个/L)	48×10^{8}	24×10^{6}	96×10^{4}
10,26	细菌总数 (个/ml)	60×10^{7}	52×10^{5}	10×10^{7}
	总大肠菌群 (个/L)	48×10^{9}	48×10^{5}	38×10^{5}
12,17	细菌总数 (个/ml)	21×10^{6}	48×10^{4}	17×10^{4}
	总大肠菌群 (个/L)	90×10^{8}	24×10^{5}	24×10^{6}

反应器所产沼气的成分分析结果见表6。

表6 气体成分

日期 (月,日)	CH₄ (%)	CO₂ (%)	运行条件 HRT(d)
10,20	69.8	12	3.53
11,10	60	32.6	7.5

反应器内的污泥浓度(总固体TS浓度)情况见表7。

表7 反应器中的污泥浓度(g/L)

日期 (月,日)	酸发酵区	产甲烷 区下部	产甲烷区上部 (沉淀区下部)
10,9		39.7	35.9
11,20	27.33	35.78	29.07

反应器出水的水质为:上清液COD80—186.3(mg/L);出水SS 80—8400(mg/L)。出水上清液(静置沉淀0.5h)水质稳定,COD平均浓度为137.5mg/L。出水中SS含量一般在1.05—8.4g/L,受反应器排泥状况的影响较大,在刚排泥之后其SS可达80mg/L。反应器排出的消化污泥浓度在30—40g/L左右,污泥可直接脱水做农肥。

4 结果分析与讨论

(1)试验表明,在处理好氧剩余污泥的运行中,酸发酵区的挥发酸为597--801.9mg/L,甲烷发酵区的挥发酸在115.8—178.2mg/L范围;微生物类群的分析结果是酸发酵区的水解发酵

菌较甲烷发酵区高两个数量级,产氢产乙酸菌高一个数量级,而甲烷发酵区的产甲烷菌比酸发酵区高3个数量级,这些数据充分说明本装置具有典型的两相消化功能。反应器中的污泥的产甲烷活性测定结果也证实了这种作用,酸发酵区的污泥基本不产甲烷,而甲烷发酵区的污泥的产甲烷能力为120ml/(gVSS·d)。

（2）当进料的剩余好氧污泥的SS为4.5—27.8g/L时,反应器内的污泥浓度情况如表7,污泥浓度维持在30—40g/L左右;装置出水上清液水质稳定,其COD平均浓度为137.5mg/L,出水带出的污泥很容易沉淀分离;装置排出的消化污泥性能稳定、浓度高、易于脱水。以上表明,本装置适宜处理象好氧剩余污泥一类的高悬浮物有机废水(液),反应器中的沉淀区发挥了很好的固液分离作用,从而提高了反应器内的污泥浓度,为反应器高效创造了条件。

（3）试验结果表明,本装置较一般传统消化池与接触消化池的效率高,主要表现在以下几方面：①本装置的总容积有机负荷稳定达到2.97kgSS/(m³·d),COD负荷为3.89kg COD/(m³·d),平均有机物的去除率为55.3%,此时的投配率为13.3%,HRT为7.5d,所产沼气中含甲烷60%以上,装置运行稳定,处理效果好。②试验期间,本装置有机物去除率为51.4—58.6%,一般接触消化池为49%—51%,日本的三相一槽反应器的去除率为51%。③本装置的水力停留时间(HRT)为3.53—8.57d,一般接触消

化池处理好氧剩余污泥的HRT为15—30d。日本三相一槽反应器为18.5d[2]。④在总HRT较接触消化池短1/3—1/2的情况下,其卫生效果与中温下接触消化池的处理效果相当,有良好的卫生效果。

（4）试验表明,利用厌氧所产沼气与水位的变化,可以达到自动进行回流搅拌的目的。运行效果良好,结构简单,控制管理方便易行。

5 结论

通过新型厌氧消化装置的设计研究与试验,取得了该反应器的主要工艺参数、结构尺寸、装置流态及控制条件等。试验结果表明,该装置具有典型的两相厌氧消化工艺的特点,适宜处理高悬浮物有机废水,并具有UASB反应器工艺保持高浓度厌氧污泥的能力,利用所产沼气及水位变化控制进行无需外加动力的自动回流搅拌,避免短路、浮渣板结等问题。该装置有机物分解率高,耐负荷变动能力强,动力消耗少,结构简单,操作管理方便,从而可有效地节省工程投资与运行费用。

目前,正着手进行生产性试验研究,使该装置能尽快为生产服务。

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以色列大量使用再生污水

以色列代理水专员Dan Zaslavsky,去年9月18日告诉全国新闻记者俱乐部听众说,以色列所使用的多达67%的水是再生污水。他补充说,以色列100%使用本国现有的地表水和地下水。全国550万人口用于所有目的的年人均耗水量约为400m³(1m³=264.2加仑);全国总耗水量约为13.54亿加仑/年。蓄水层被最大限度加以利用,一般禁止挖掘新井。Zaslavsky估计,如果以色列及

其邻国单独使水管理最佳化,那么,各国可有效地使水资源库增加大约5%,但如果以色列及其邻国能在最佳化水管理方面合作的话,中东水资源库就可增加400%。他认为海水淡化是增加供水的最佳方法:他估计,"一架复杂的战斗机的代价,可用来建造一座为10万人服务的海水淡化厂。"

淮海译自 ES&T.1992,26(11):2045

Based on the property of the banknote printing effluent studied, the polysulfone blend hollow fiber menbrane with single skin was choosen. The technical parameters of ultrafiltration, such as operating pressure, curent velocity, temperature and cleaning reagent, procedure were determined. The results show that when the process operated at an enter pressure of 0.17MPa, recycle feed temperature of about40℃ and a curent velocity of about 2.7m/s, the flux could be 50-60L/m · h. Normally the permeate rate can be restored better only through a simple cleaning with the permeate. When the permeate rate ca was declined sianificantly, a chemical cleaning would be necessary to be taken at a temperature below 70℃. The cleaning period was at least 7 days.

Key words: hollow fiber menbrane, printing banknote effluent, ultrafiltration, wastewater recycle.

Treatment of High Concentration Copper-COD Wastewater. Zhang Zhongyan et al. (Shanghai University of Technology): *Chin. J. Environ. Sci.* ,14(4),1993,pp. 37—41

A combined chemical coagulation-biological fluidized bed process has been used to investigate the treatment of wastewater in whieh the concentrations of copper and COD are 1700—3800mg/L and 3900—5400 mg/L, respectively. The relations between the copper and COD removal rates and the technical conditions of the process, such as retention time, load in influent water, the ratio of gas to water etc. for the fluidized bed, pH and coagulant dosages etc. for coagulation process, have been determined. The results show that the above conbined process is the effective one for high concentration copper-COD wastewater. Under the optimum conditions, the copper and COD concentrations in the effluent can be less than 0.82 mg/L and 180 mg/L respectively, and the total removal rates can be obtained of up to 99.97% for copper and 95% for COD.

Key words: chemical coagulation, fluidized bed, copper, organic wastewater, wastewater treatment.

Observation and Analysis on the Radiative Effects of the Lanzhou *Winter Urban Smog Layer.* Su Wenying et al. (Department of Atmospheric Science, Lanzhou University, Lanzhou 730001): *Chin. J. Environ. Sci.* ,14(4),1993,pp. 42—47

In winter, there is a dense smog layer over Lanzhou city. In this paper, use the radiative and sonde data obtained in December 1990 at Lanzhou University and at the top of the South-mountain which is 625 m high to analyse and calculate the radiative effects of the smog layer. The Lanzhou urban smog layer is characterized by a high turbidity coefficient and a low wave length exponent, and decreases the solar radiation significantly. The average heating rate of the smog layer is 6.16 ℃/dvwith maximum turbidity coefficient. The smog layer has different extinctionsto different wave intervals and has a strongest extinction to the visible part. The smog layer causes the counter radiation reaching Lanzhou surface 5.2% more than that of the South-mountain, total incoming radiation is 5.6% less than that of the South-mountain, and surface radiation balance is 67.8% less than that of the South-mountain. The existence of the smog layer increases the stability of the urban boundary layer.

Key words: urban smog layer, short-wave heating, long-wave cooling rate, extinction coefficient, surface radiation balance.

Application of the Face Graph and Geo-accumulation Index

Method to the Comprehensive Assessment of Pollution by Heavy Metals in Sedimdent. Zhao Zhijié wt al. (Departmennt of City and Environmental Science, Peking University, B eijing 1000871): *Chin. J. Environ. Sci.* ,14(4),1993,pp. 48—52

Based on the sedimentation principles and environmentally chemical characteristics of heavy metal, and using internationally new methods on heavy metal pollution assessment with multi-variable graph expression——face graph, a synthtical assessment study has been made on the state of heavy metal pollution and geo-accumulation of heavy metals in Taizi river sediment in Benxi reach. The results indicated that the state of heavy metal pollution of Taizi river in Benxi reach is very serious, and appropriate counter measures should be taken.

Key words: multi-variable graph——face graph, heavy metal pollution, geo-accumulation index.

Study on Arsenic Speciation in the environment. Wang Chunxu, Li Shengzhi et al. (Hebei Normal University, Shijiazhuang 050016); *Chin. J. Environ. Sci.* ,14(4),1993,pp. 53—57

Different arsenic species in soils, sea waters, marine organisms and urine are determined by using the hydride generation-electrothermal quartz furnace-atomic absorption spectrometry. The results indicates that the inorganic arsenic is a major part of arsenic in soils and As (V)is major part of inorganic arsenic. Methylated arsenic species is important in sea waters and urine. Moreover MMAA and DMAA are significant fractions in marine organisms.

Key Words: electrothermal quartz furnace; Atomic absorption spectrometry, arsenic species.

A Study on the Natural Mineral Manganese Catalytic Oxidation Process for the Treatment of Sulfur-bearing Wastewater. Chen Tianhu, Wang Jiaquan. (Hefei University of Technology, Hefei 230009); *Chin. J. Environ. Sci.* 14(4),1993,pp. 58—61

A cheep natural mineral manganese was used as a catalyst to catalytically oxidate sulfur-bearing wastewater at the ambient temperature and pressure. When the wastewater has a sulfur concetration of 100—400mg/L, and is treated in a 10l. reactor at ᴐH 9-10, with an air flow of 0.1m³/h and a catalyst dose of 100—150mg/L for 4 hours, the removal of sulfur from wastewaster reaches 94%—98%. As compared with the similar process without catalyst, the present process has a reduced air volume and time for aeration, about 30% reduction in energy consumption, and about 20% reduction in treatment cost. The results show that Using this King of cheep natural mineral manganese as a catalyst to catalytically oxidate sulfur-bearing wastewater is an effective method.

Key words: natural mineral manganese, catalytic oxidation, sulfur-bearing wastewater.

An Anaerobic Reactor for the treatment of Organic Wastewater Containing High Suspended solids. Shen Lixian et al. (Beijing Municipal Research Institute of Environmental Protection, Beijing 100037); *Chin. J. Environ. Sci.* ,14(4),1993,pp. 62—65

The reactor used in this study combined the features of UASB and two-phase digestion reactors. Acidification, methanogenesis digestion and settling clarification are effectively integrated in one reactor. The return mixing by produced biogas and the liquid is achieved and no energy and equipment are needed. The problems

of sludge clogging, liquid shortcuting and aggregation of scum have been solved. The exeperiment of treating aerobic excess sludge studied in 120 liter reactor at 35℃ shows that the organic pollutant removal efficiency of 51. 4%—58% is reached corresponding to HRT=3. 53—8. 57 days. When HRT is fixed at 7. 5 days, the organic loading rate, COD loading rate and average organic removal efficiency are 2. 97 KgSS/(m^3. d), 3. 89 kgCOD/(m^3. d) and 55. 3%, respectively. The methane content of biogas is more than 66%.

Key words: two-phase digestion, anaerobic reactor, aerobic excess sludge treatment.

Production Test on Facultative Anaerobic-AB Process in Treating Slaughterhouse Wastewater and Its Microbiological Characteristics. Zheng Dandan et al. (Chengdu Institute of Biology Academia Sinica, Chengdu 610041); *Chin. J. Environ. Sci.*, **14**(4), 1993, pp. 66—70

To treat the slaughterhouse wastewater of Neijiang Comprehensive Processing Plant, facultative anaerobic-AB process was used. During the trial operation, the loading rate of facultative anaerobic regulating tank was 0. 50kgCOD$_{Cr}$/m^3, and its removal rate of COD$_{Cr}$ (ηCOD$_{Cr}$) was 31. 15% the sludge loading rate (B$_{TS}$) in A-stage was 4. 78kgBOD$_5$/(kgMLSS · d) and ηCOD$_{Cr}$=53. 37%; in B-stage, B$_{TS}$ = 0. 73 kgBOD$_5$/(kgMLSS · d) and ηCOD$_{Cr}$ = 54. 70%. There was no problem for this process in compliance with the national standards, the effluent had COD$_{Cr}$103. 1mg/L(η = 88. 77%), BOD$_5$32. 0mg/L(η=94. 47%), SS 36. 1mg/L(η= 89. 64%), Color 26 times (η=80. 60%), and pH 7. 72. When this process was put into formal operation, its effluent quality remain stable with γ=0. 48. Results indicated that this process was stable with high efficiency and low investment needed. It is an advanced process worth spreading. There was an anaerobic digestion microorganism community in the biomembrane formed on the support material in facultative anaerobic regulating tank; besides this, there were different biosystematics existing in A and B stages' aerobic tanks, A-stage is predominant in bacteria and B-stage in protozoa. The analysis of the microbiological characteristics of this process offer theoretical basis for using it to treat other kinds wastewater.

Key words: facultative anaerobic-AB process, slaughterhouse wastewater, production test, microbiological characteristics.

A Study on the Treatment of Paint Wasterwater by a Sequencing Biological Batch Reactor. Zhou Yuexi et al. (Chinese Research Academy of Environmental Sciences, Beijing 100012); *Chin. J. Environ. Sci.*, **14**(4), 1993, pp. 71—73

In this paper, the research was made on the treatment of paint wastewater by a sequencing biological batch reactor. The experimental results demonstrate that the biological batch system can effectively remove organic matter. With the experimental time sequence (flow-in 1 h. , anaerobic 6 h. , aerobic 14h. , setting 1 h. and flow-out 1 h.), the removal rate of COD is 84%—96%(influent COD is 1000—4000 mg/L).

Key words: sequencing biological batch reactor, paint wasterwater.

The Effects of the UV Light on the Catalase(CAT) Activity of Several Species of Aquatic Plants. Li Hongwen et al. (Suzhou Institute of Urban Construction and Environmental Protection,

Suzhou 215008); *Chin. J. Environ. Sci.*, **14**(4), 1993, pp. 74—77

By testing the volume of O$_2$which is released after the CAT of the plants exposed to exceeded UV decomposed H$_2$O$_2$, the CAT activity of the exposed plants is determined. The results show that the CAT activities for three plant species, Azolla imbricata, Lemna minor, Alternanthera philoxeroides, obviously rose respectively after they had been exposed to exceeded UV in defferent hours. But the maximum values of the CAT activities for three plant species is vary with defferent species. There is a maximum value of the CAT activity for Azolla imbricata which is exposed to exceeded UV in 72 hours. There is a maximum value of the CAT activity for Lemna minor which is exposed toexceeded UV in 24 hours. There is a maximum value of the CAT activity for Alternanthera philoxeroides which is exposed to the exceeded UV in 8 hours. The CAT activities for three plant species decreased respectively in some hours after the influence of the UV had been withdrawn. This shows that there obviously are stimulative affects of the exceeded UV on the CAT active for three plants. Meanwhile, the tissues and metabolism of the exposed plants are injured by the exceeded UV. It finally leads up to decrease the CAT activity of the exposed plants. The ecological effects of various plant species on the exceeded UV are defferent.

Key words: Catalase (CAT). Ultraviolet (UV), Lemna minor, Azolla imbricata, Alternanthera philoxeroides.

Improvement in the Pretreatment Method of Samples for the Determination of Sulfides in Wastewater. Wu Yuzhen. (Nanning Environmental Monitoring Station, Nanning 530012); *Chin. J. Environ. Sci.*, **14**(4), 1993, pp. 78--80

The pretreatment method of samples, known as N$_2$-blowing method, for the determination of sulfides in wastewaer has been further studied and improved. The improvement includes the test apparatus, pretreatment procedure, acidity and temperature used in the pretreatment, and the volume of reaction bottle. Particularly, a multihole blowing ball was used to replace the sigle hole blowing pipet, and a mixture of NaOH, EDTA and TEA was used as the blowing-absorbing solution instead of ZnAc$_2$-NaAc. Then a stepwise pressure procedure has been suggested. The studies on the recovery and precision of the improved method and the comparative determination of six different kinds of industrial wastewater show that the improvement has seen an obvious effectiveness and the recovery increases from 40% for the original method to over 95% for the improved method. The blowing time is shortened by 25%. The apparatus is easy to operate.

Key words: N-blowing method, multi-hole blowing ball, sulfide.

Quality Control for the Analysis of Volatile Organic Pollutants by GC-MS. Sun sien et al. (The Research Center for Eco-Environmental Sciences, Academia Sinica, Beijing 100085); *Chin. J. Environ. Sci.*, **14**(4), 1993, pp. 81—86

This paper described the Quality control for the analysis of volatile organic pollutants by GC-MS according to the US EPA CLP programme. The criteria of quality control in the process of analysis were presented. Five samples have been analysed in order to demonstrate the procedure. This method is used to quantify most volatile organic compounds having boiling points below 200℃ and compounds are insoluble in water. The practical quantitation limit