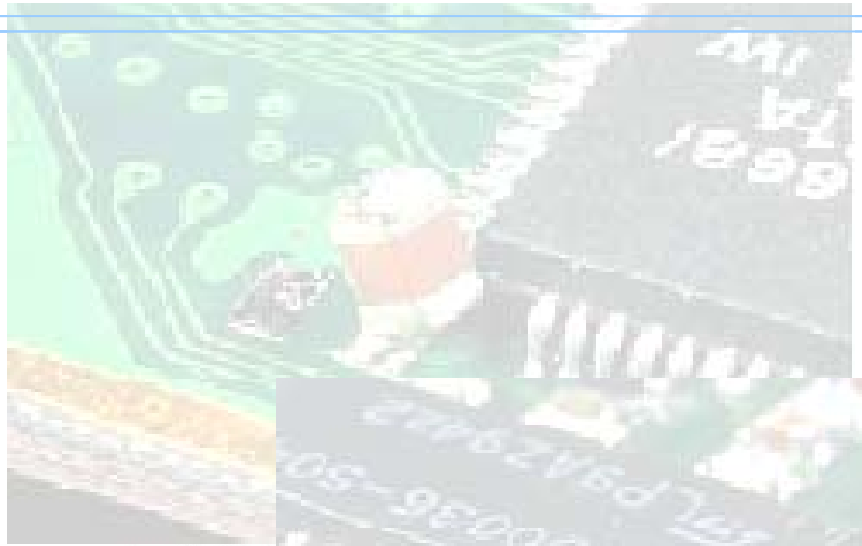
about

FluxClean-808



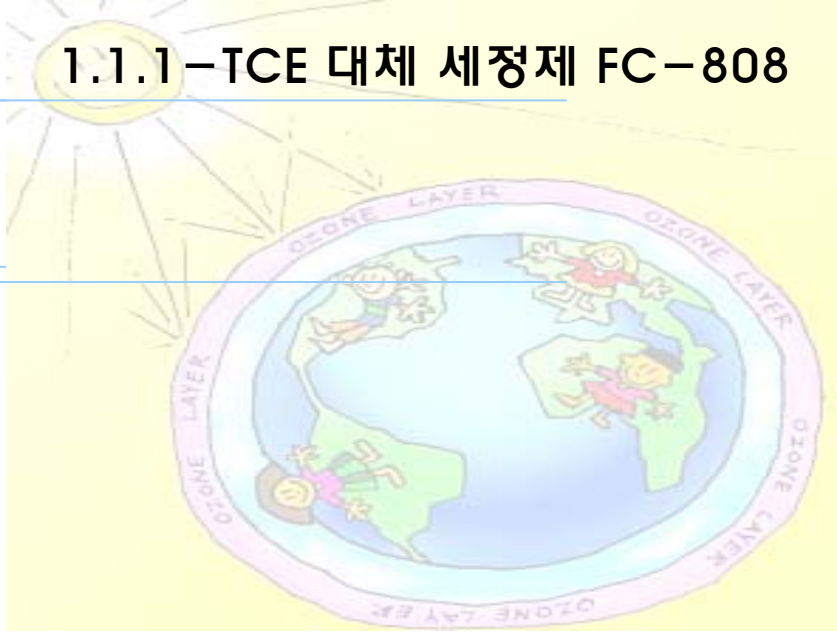
주식회사 전 영
JEONYOUNG Co., Ltd.

www.cychem.co.kr

Tel 041-362-5991

Fax 041-362-5996

국제환경협약



1.국제환경협약

세정분야에 광범위하게 사용되어온 CFC-113과 1.1.1-TCE가 오존층 파괴물질로써 사용이 규제됨에 따라 선진국(OECD)은 95년말에 이미 전폐하였으나 한국은 96년에 OECD에 가입함에 따라 개발도상국과 함께 개도국 규제 일정에 따르게 되어 대체 세정제의 확보가 시급한 상황이다

"몬트리올의정서 및 개정의정서의 선진국의 ODS 규제조치"

규제물질	선진국	개도국	용도
프레온 (CFC-11.12.113. 114.115)	'96.1.1 부터 전폐 (필수용도제외)	'95-97년 평균소비량 기준 '99.1.1부터 동결 '05.1.1 부터 50%삭감 '07.1.1 부터 85%삭감 '10.1.1 부터 전폐	냉장고/에어컨 냉매 전자제품 세정제
메틸클로로포롬 (1.1.1-TCE)	'96.1.1 부터 전폐	'98-2000 평균소비량 기준 '03.1.1 부터 동결 '05.1.1 부터 30% 삭감 '10.1.1 부터 70% 사감 '15.1.1 부터 전폐	HCFC 원료. 금속류 등 세정제
HCFC HBFC MeBr	'96 부터 단계적단축 '96 부터 전폐 '05 부터 전폐	'16 부터 생산량 및 소비량 동결 '96 부터 전폐 '15 부터 전폐	

2. 유해물질사용제한 지침(RoHS)

- **2006년 7월 1일 부터 납,수은,카드뮴.6가크롬. Pbb 및 PBDE(총6종)등 동지침에 의해 사용이 제한되는 물질이 포함된 새로운 (NEW) 전기/전자부품은 시장에서 판매 불가**

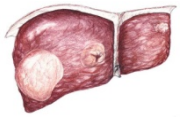
- **적용대상**

  대형가정기기. 소형가전기기,IT 및 통신 장비, 소비가전,조명기기, 전기 및 전자공구, 완구/레져/스포츠용품,자동판매기

3. 1.1.1-TCE의 유해성

FC-808 인체와 환경에 안정

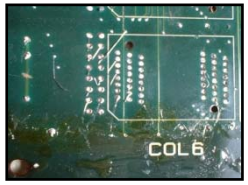
1.1.1-TCE는 우리나라의 주력 산업인 자동차, 프레스, 열처리 도금, 도장/전처리, 전기/전자, 정밀기계/금속, 유리광학 등의 정밀 세정분야에서 광범위하게 사용되고 있으나, 대부분 수입에 의존하고 있다. 현재 주 공급원인 미국과 유럽 제조업체들의 생산감축과 공장중단에 따라 수급에 큰 차질이 예상되며, 실제 큰 폭의 가격상승이 일어나고 있다.

1.1.1-TCE		FC-808
미국 독립독성 계획단(NTP) 및 국제 발암성 연구소(IARC)에서 **발암성 물질로** 규정. 신장, 간 , 중추 신경계에 영향 미침.	 발암성	사용자의 인체에 악 영향을 주는 독성 요소를 배제한 低 **공해,** 低 **독성 세정제**.
1.1.1-TCE는 휘발성 유기화합물 규제제품 (VOCs) 37제품 중 하나로써 오존파괴 지수가 높은 특성물질로 알려져 **전폐 및 규제가 대폭 강화**.	 환경성	 유해물질사용제한 지침에 명시된 납,수은,카드뮴, 6가크롬 **불 포함 입증**
흡입에 장기간 노출 시 자극, 구역, 구토, 설사, 호흡곤란, 두통, 졸음, 현기증, 조정(기능)손실, 폐 이상, 혈액 장애, 신장 이상, 간 이상,내출혈, 심장 이상, 신경 이상, 생식계 영양, 혼수 등에 **잠재적으로 건강에 악영향을** 끼친다,	 유해성	 저 독성으로 흡입독성이 적고, 난연성으로서 폭발, 인화성이 없어 **작업 안전성이 우수**

Flux 정밀 세정

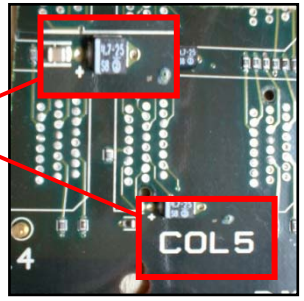
FluxClean-808

세 정 력



상온, 침적2분 후

인쇄된 부위
증착된 소켓
영향 없음



세정속도

일반 Flux 세정제에 비하여 세정 속도가 **빠르다**

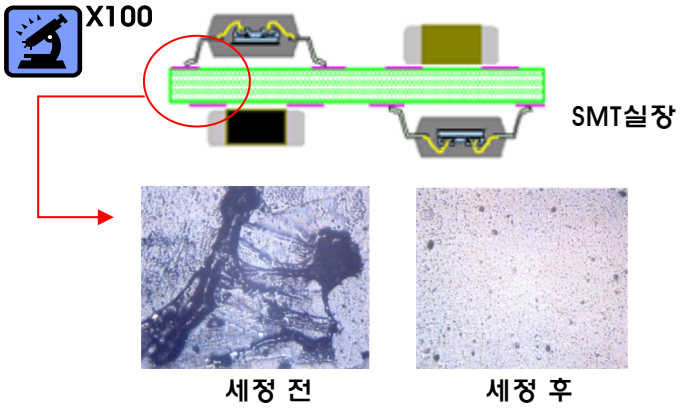
세정조건

가온 없이 **상온 사용** 가능하다.

세정력

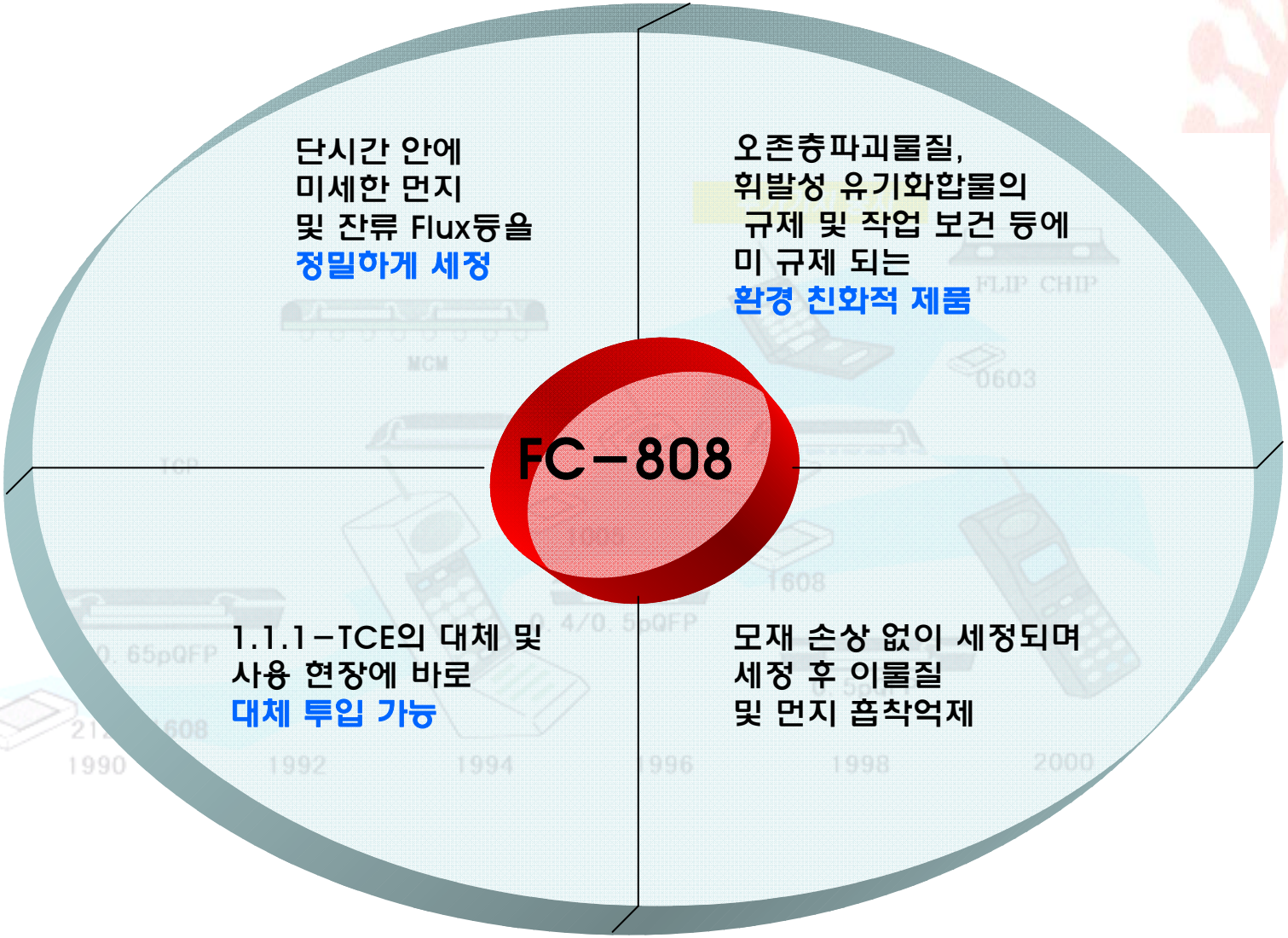
백화현상, 얼룩이 없이 깨끗하게 세정된다.

Flux 세정



미세한 먼지 및 잔류 Flux등도 **정밀하게 세정**.
세정 후 이물질 및 **먼지 흡착을 억제**

FC-808 특성


단시간 안에
미세한 먼지
및 잔류 Flux등을
정밀하게 세정
오존층파괴물질,
휘발성 유기화합물의
규제 및 작업 보건 등에
미 규제 되는
환경 친화적 제품
FC-808
1.1.1-TCE의 대체 및
사용 현장에 바로
대체 투입 가능
모재 손상 없이 세정되며
세정 후 이물질
및 먼지 흡착억제

Flux 세정제
FluxClean-808

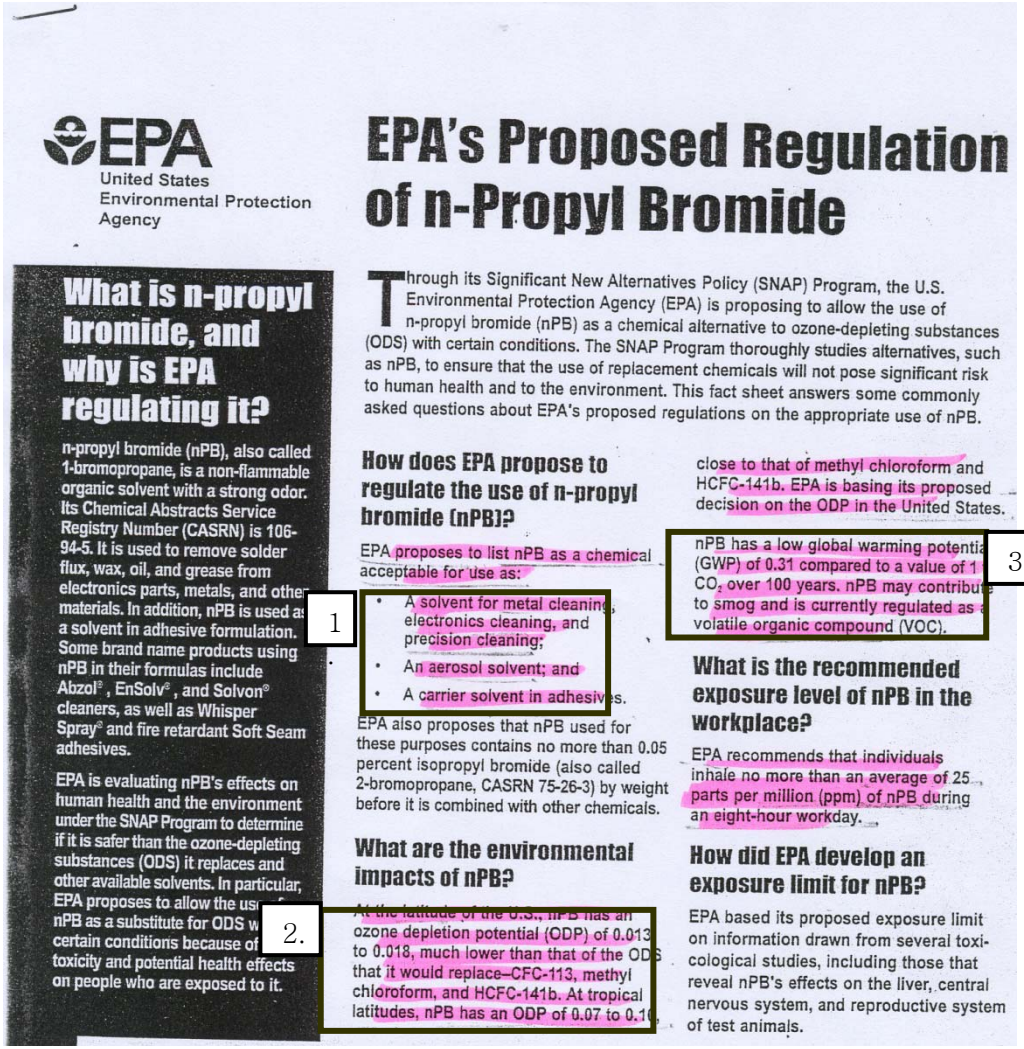
Solder 공정에서 사용되는 Flux (Rosin계, 비Rosin계)를 세정하기 위한 Solvent계 세정 액으로서 잔사와 잔류 Rosin의 세정에 대단히 높은 세정 효과를 나타낸다.

Specification

외 관	미황색 투명한 액체	사용농도	원액
냄 새	-	사용온도	상온
비 중	1.43 ± 0.02	작업방법	침적, 침적초음파,스프레이
pH	중 성	포장	25kg PE , 200kg D/M

사용 시 주의 사항 : 작업 시 국소 배기 장치를 설치 할 것(25ppm)
유기용제용 정화통을 장착한 호흡기 보호장비를 착용 할 것

4. 미국 환경청 안정성 검증 (nPBr)



EPA
United States Environmental Protection Agency

EPA's Proposed Regulation of n-Propyl Bromide

What is n-propyl bromide, and why is EPA regulating it?

n-propyl bromide (nPB), also called 1-bromopropane, is a non-flammable organic solvent with a strong odor. Its Chemical Abstracts Service Registry Number (CASRN) is 106-94-5. It is used to remove solder flux, wax, oil, and grease from electronics parts, metals, and other materials. In addition, nPB is used as a solvent in adhesive formulation. Some brand name products using nPB in their formulas include Abzol®, EnSolv®, and Solvon® cleaners, as well as Whisper Spray® and fire retardant Soft Seam adhesives.

EPA is evaluating nPB's effects on human health and the environment under the SNAP Program to determine if it is safer than the ozone-depleting substances (ODS) it replaces and other available solvents. In particular, EPA proposes to allow the use of nPB as a substitute for ODS under certain conditions because of its toxicity and potential health effects on people who are exposed to it.

Through its Significant New Alternatives Policy (SNAP) Program, the U.S. Environmental Protection Agency (EPA) is proposing to allow the use of n-propyl bromide (nPB) as a chemical alternative to ozone-depleting substances (ODS) with certain conditions. The SNAP Program thoroughly studies alternatives, such as nPB, to ensure that the use of replacement chemicals will not pose significant risk to human health and to the environment. This fact sheet answers some commonly asked questions about EPA's proposed regulations on the appropriate use of nPB.

How does EPA propose to regulate the use of n-propyl bromide (nPB)?

EPA proposes to list nPB as a chemical acceptable for use as:

- A solvent for metal cleaning, electronics cleaning, and precision cleaning;
- An aerosol solvent; and
- A carrier solvent in adhesives.

EPA also proposes that nPB used for these purposes contains no more than 0.05 percent isopropyl bromide (also called 2-bromopropane, CASRN 75-26-3) by weight before it is combined with other chemicals.

What are the environmental impacts of nPB?

At the latitude of the U.S., nPB has an ozone depletion potential (ODP) of 0.013 to 0.018, much lower than that of the ODS that it would replace–CFC-113, methyl chloroform, and HCFC-141b. At tropical latitudes, nPB has an ODP of 0.07 to 0.1[illegible] close to that of methyl chloroform and HCFC-141b. EPA is basing its proposed decision on the ODP in the United States.

nPB has a low global warming potential (GWP) of 0.31 compared to a value of 1 for CO_2 over 100 years. nPB may contribute to smog and is currently regulated as a volatile organic compound (VOC).

What is the recommended exposure level of nPB in the workplace?

EPA recommends that individuals inhale no more than an average of 25 parts per million (ppm) of nPB during an eight-hour workday.

How did EPA develop an exposure limit for nPB?

EPA based its proposed exposure limit on information drawn from several toxicological studies, including those that reveal nPB's effects on the liver, central nervous system, and reproductive system of test animals.

1. nPB사용 가능 한 곳 : 금속 세척, 전기/전자 세척, 증기세척, 접착제 세척

2. CFC 계열보다 오존지수가 월등히 낮음.

3. 온난화지수가 CO2를 1로 보았을 때 nPB는 0.31로써 안정적임.

5. 납,수은,카드뮴.6가크롬. Pbb및 PBDE(총6종) 不 포함 시험성적서

한국화학시험연구원
150-038 서울특별시 영등포구 영등포동8가 88번지
TEL : (02) 2164-0011 FAX : (02) 2634-1008

시 험 성 적 서
TEST REPORT

우404-253 인천광역시 서구 가좌3동 539-8 TEL(032)577-6801 FAX(032)575-5613

접수번호: TAS-017811
대 표 자: 이을규
업 체 명: 전영화학(주)
주 소: 경기 안산시 성곡동 637-1(반월공단 607-24)
접수일자: 2005년 06월 10일 시험완료일자: 2005년 06월 20일
시 료 명: 세정액(Fluxclean-808)

시 험 결 과

시험항목	단위	시료구분	결과치	시험방법
Pb	mg/kg		검출안됨	ICP 분석
Cd	mg/kg		검출안됨	ICP 분석
Hg	mg/kg		검출안됨	ICP 분석
Cr	mg/kg		검출안됨	ICP 분석
Total-PBBs	mg/kg		검출안됨	GC/MS
Mono-BB	mg/kg		검출안됨	GC/MS
Di-BB	mg/kg		검출안됨	GC/MS
Tri-BB	mg/kg		검출안됨	GC/MS
Tetra-BB	mg/kg		검출안됨	GC/MS
Penta-BB	mg/kg		검출안됨	GC/MS
Hexa-BB	mg/kg		검출안됨	GC/MS
Hepta-BB	mg/kg		검출안됨	GC/MS
Octa-BB	mg/kg		검출안됨	GC/MS
Nona-BB	mg/kg		검출안됨	GC/MS
Deca-BB	mg/kg		검출안됨	GC/MS
Total-PBDEs	mg/kg		검출안됨	GC/MS
Mono-BDE	mg/kg		검출안됨	GC/MS
Di-BDE	mg/kg		검출안됨	GC/MS
Tri-BDE	mg/kg		검출안됨	GC/MS
Tetra-BDE	mg/kg		검출안됨	GC/MS
Penta-BDE	mg/kg		검출안됨	GC/MS
Hexa-BDE	mg/kg		검출안됨	GC/MS
Hepta-BDE	mg/kg		검출안됨	GC/MS
Octa-BDE	mg/kg		검출안됨	GC/MS

- 다음 페이지 -

담당자 : 정정설 (031-999-3112)

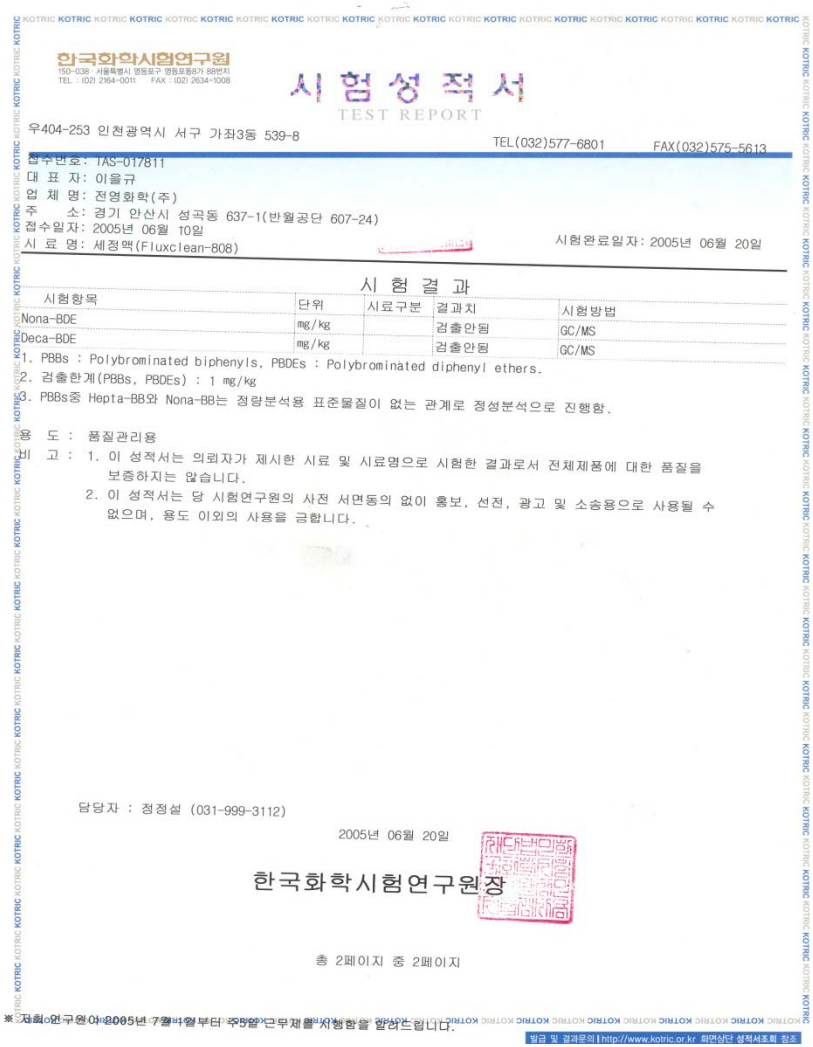
2005년 06월 20일

한국화학시험연구원장

총 2페이지 중 1페이지

※ 저희 연구원이 2005년 7월 1일부터 주5일 근무제를 시행함을 알려드립니다.

발급 및 결과문의 | http://www.kotric.or.kr 화면상단 성적서조회 참조



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주 소: 경기 안산시 성곡동 637-1(반월공단 607-24)
접수일자: 2005년 06월 10일 시험완료일자: 2005년 06월 20일
시 료 명: 세정액(Fluxclean-808)

시 험 결 과

시험항목	단위	시료구분	결과치	시험방법
Nona-BDE	mg/kg		검출안됨	GC/MS
Deca-BDE	mg/kg		검출안됨	GC/MS

1. PBBs : Polybrominated biphenyls, PBDEs : Polybrominated diphenyl ethers.
2. 검출한계(PBBs, PBDEs) : 1 mg/kg
3. PBBs중 Hepta-BB와 Nona-BB는 정량분석용 표준물질이 없는 관계로 정성분석으로 진행함.

용 도 : 품질관리용

비 고 : 1. 이 성적서는 의뢰자가 제시한 시료 및 시료명으로 시험한 결과로서 전체제품에 대한 품질을 보증하지는 않습니다.
2. 이 성적서는 당 시험연구원의 사전 서면동의 없이 홍보, 선전, 광고 및 소송용으로 사용될 수 없으며, 용도 이외의 사용을 금합니다.

담당자 : 정정설 (031-999-3112)

2005년 06월 20일

한국화학시험연구원장

총 2페이지 중 2페이지

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발급 및 결과문의 | http://www.kotric.or.kr 화면상단 성적서조회 참조

6. 오존층 파괴 물질 非 함유 증명서

CFC's

Not detecte

SGS Testing Korea Co., Ltd.
#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
Tel : 031) 428-5765~6, Fax: 031) 427-2374, InterNet>http://www.sgslab.co.kr

Test Report No. F690501/LF-CTS060120 Date : July 4, 2005 Page 1 of 10

CHEONYOUNG CHEMICAL CO., LTD.
637-1, Sunggok-dong, Danwon-gu, Ansan-city,
Kyunggi-do, Korea.

The following merchandise was submitted and identified by the client as : -

Type of Product	:	Fluxclean-808
SGS File No.	:	G-49/2005-1069/1
Sample Receiving Date	:	Jun. 27, 2005
Test Performing Date	:	Jun. 27, 2005
Test Performed	:	SGS Testing Korea tested the sample which was selected by applicant with following result through subcontracted working as previously agreed.
Test Results	:	For further details, please refer to following page.

SGS Testing Korea Co., Ltd.

KHJ/ysh

Jason Han / Director

SGS Testing Korea Co., Ltd.
#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
Tel : 031) 428-5765~6, Fax: 031) 427-2374, InterNet>http://www.sgslab.co.kr

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Test Results

Test Items	Unit	Method	MDL	Results
CFC's(Chlorofluorocarbons)		With reference to US EPA 8260.		
Group I				
Chlorofluorocarbon-11 (CAS No:000075-69-4)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-12 (CAS No:000075-71-8)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-113(CAS No:000076-13-1)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-114(CAS No:000076-14-2)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-115(CAS No:000076-15-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Group III				
Chlorofluorocarbon-13 (CAS No:000075-72-9)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-111(CAS No:000354-56-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-112(CAS No:000076-12-0)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-211(CAS No:135401-87-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-212(CAS No:076564-99-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-213(CAS No:060285-54-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-214(CAS No:002268-46-4)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-215(CAS No:000076-17-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-216(CAS No:001652-80-8)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-217(CAS No:000422-86-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.

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1002-2, Hwasan-ri, Onsan-eub, Ulju-gun, Ulsan, Korea 689-890 t +82 (0)52 239 6908~10 f +82 (0)52 239 6913
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#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
Tel : 031) 428-5765~6, Fax: 031) 427-2374, InterNet>http://www.sgslab.co.kr

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Test Results

Test Items	Unit	Method	MDL	Results
CHC's(Chlorinated hydrocarbon)		With reference to US EPA 8260.		
1,1,1,2-Tetrachloroethane(CAS No:000630-20-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N. D.
1,1,1-Trichlorotehane(CAS No:000071-55-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,1,2,2-Tetrachloroethane(CAS No:000079-34-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,1,2,-Trichloroethane(CAS No:000079-00-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,1-Dichloroethane(CAS No:000079-35-4)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,1-Dichloroethane(CAS No:000563-58-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,1-Dichloroethane(CAS No:000079-58-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,2,3-Trichloropropane(CAS No:000096-19-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,2-Dichloroethane(CAS No:000107-06-2)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
1,3-Dichloropropane(CAS No:000142-28-9)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
2,2-Dichloropropane(CAS No:000594-20-7)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Carbon tetrachloropropane(CAS No:000056-23-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chloroethane(CAS No:000075-00-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chloroform(CAS No:000067-66-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Chloromethane(CAS No:000074-87-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.

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#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
Tel : 031) 428-5765~6, Fax: 031) 427-2374, InterNet>http://www.sgslab.co.kr

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Test Results

Test Items	Unit	Method	MDL	Results
Cis-1,2-Dichloroethene(CAS No:000156-59-2)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Cis-1,3-Dichloropropene(CAS No:010061-01-5	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Hexachlorobutadiene(CAS No:000087-68-3)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Methylene Chloride(CAS No:000075-09-2)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Tetrachloroethene(CAS No:000127-18-4)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Trans-1,2-Dichloroethene(CAS No:000156-60-5)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Trans-1,3-Dichloropropene(CAS No:010061-02-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.
Trichloroethylene(CAS No:000079-01-6)	ppm	Analysis was performed by GC/MS. (CFC's(Chlorofluorocarbons))	1	N.D.

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CFC's Not detected

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Tel : 031) 428-5765~6, Fax: 031) 427-2374, InterNet>http://www.sgslab.co.kr

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Test Results

Test Items	Unit	Method	MDL	Results
HCFC's(Hydrogenated chlorofluorocarbons)		With reference to US EPA 8260.		
Hydrochlorofluorocarbon-21 (CAS No.:000075-43-4)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-22 (CAS No.:000075-45-6)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-31 (CAS No.:000593-70-4)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-121(CAS No.:000354-14-3)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-122(CAS No.:000354-21-2)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-123(CAS No.:000306-83-1)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-124(CAS No.:002837-89-0)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-131(CAS No.:000359-28-4)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-131b(CAS No.:000471-43-2)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-133a(CAS No.:000075-88-7)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.

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HCFC's Not detected

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#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
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Test Results

Test Items	Unit	Method	MDL	Results
Hydrochlorofluorocarbon-141b(CAS No.:001717-00-6)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-221	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-222CA No.:000422-30-0)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-223	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-224	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-225ca (CAS NO:000422-56-0)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-225cb (CAS NO:000507-55-1)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-226(CAS No.:000431-87-8)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-231	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-232	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-233	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-234	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.

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#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
Tel : 031) 428-5765~6, Fax: 031) 427-2374, InterNet>http://www.sgslab.co.kr

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Test Results

Test Items	Unit	Method	MDL	Results
Hydrochlorofluorocarbon-235(CAS No.:013838-16-9)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-241	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-242	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-243(CAS No.:000338-75-0)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-244	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-251	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-252	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-253(CAS No.:000354-06-1)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-261(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-262(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.
Hydrochlorofluorocarbon-271	ppm	Analysis was performed by GC/MS. (HCFC's(Hydrogenated chlorofluorocarbons))	1	N.D.

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HCFC's

Not detected

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#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040
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HFC's

Not detected

Test Results

Test Items	Unit	Test Method	MLD	Results
Hydrofluorcarbon, fluorinated hydrocarbon, fluorohydrocarbon		With reference to US EPA 8260.		
HFC-23(CHF3)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-41(CH3F)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-43-10mee(C5H2F10)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-125(C2HF5)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-134(C2H2F4)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-134a(CH2FCF3)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-143(CH3F3)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-143a(CH3F3)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-152a(C2H4F2)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-227ea(C3HF7)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-236fa(C3H2F6)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-236ea(C3H2F6)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-245ca(C3H3F5)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-245fa(C3H3F5)	ppm	Analysis was performed by GC/MS.	1	N.D.
HFC-365mfc(C4H5F5)	ppm	Analysis was performed by GC/MS.	1	N.D.

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Test Results

Test Items	Unit	Method	MDL	Results
HBFC	ppm	With reference to 3093/94/EEC. Analysis was performed by GC/MS.	1	N. D.

Test Items	Unit	Method	MDL	Results
Halon		With reference to US EPA 8260.		
Halon-1211	ppm	Analysis was performed by GC/MS linked Headspace.(CFC's(Chlorofluorocarbons))	1	N .D.
Halon-1301	ppm	Analysis was performed by GC/MS linked Headspace.(CFC's(Chlorofluorocarbons))	1	N. D.
Halon-2402	ppm	Analysis was performed by GC/MS linked Headspace.(CFC's(Chlorofluorocarbons))	1	N. D.

Test Items	Unit	Test Method	MLD	Results
1,1,1-trichoroethane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS.	1	N.D.

Test Items	Unit	Test Method	MLD	Results
Carbon tetrachloride	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.

Test Items	Unit	Test Method	MLD	Results
Bromomethane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.

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Test Results

Test Items	Unit	Test Method	MLD	Results
PFC	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
F14	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Fluorocarbon 116	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Freon 218	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Decafluorobutane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Freon C318	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Perfluor-1-butane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Perfluorisobutane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
1,4-dihydorctafluorobutane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
nonafluor-2-(trifluorpmethyl)butane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
Perfluoro-n-pentane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
2-perfluoromethylpentane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
perfluorohexane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.

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********** End **********

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