



하이퍼 콤프레셔 적용 루브캠 특수윤활제

LUBCHEM SPECIALTY
LUBRICANTS FOR
THE **HYPER COMPRESSOR**



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LUBRICATION
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LUBCHEM

For Better Environment

YOUR GLOBAL LUBRICATION PARTNER LUBCHEM

루브캠코리아는 표준화된 다양한 시험기를 보유하고 있으며 생산 제품에 대한 정기적인 테스트를 통하여 품질 안정화에 항상 전력을 기울이고 있습니다. 당사는 OEM과의 긴밀한 협조를 통하여 거의 모든 산업 분야에서 적용되는 베어링, 기어등에 필요한 특수 윤활제를 지속해서 개발하고 있습니다.

당사의 윤활제 개발은 우선 고객의 입장에서 착수되며 개발로 인한 혜택을 최우선으로 하여 고객에게 돌려드리는데 그 주안점으로 두고 있습니다. 최적화된 공정, 높은 생산성, 엄격한 품질 기준에 일치하는 제품 생산을 바탕으로 루브캠코리아는 고객의 운영 설비에 대한 보전 및 수리 비용 절감에 도움을 드리고자 합니다.

또한, 제품 개발 단계에서 고객과의 긴밀한 동반관계를 통해서 고객의 경쟁 업체와는 차별화될 수 있는 높은 수준의 제품과 서비스를 제공하고 있습니다.

당사의 윤활제 개발 목표는 윤활 부위에서 최소 적용량으로 최대의 재윤활 주기 달성에 있으며 이러한 결과로 자원을 절감하고 폐기물 발생 최소화를 통한 환경 보호에 있습니다. 특수 윤활제 사용은 무엇보다도 높은 효율성으로 에너지를 절감하고 CO₂ 발생을 최소화시킬 수 있습니다.

루브캠코리아 윤활 전문가들에 의해서 개발되는 윤활제에서 가장 기본적인 가치 기준은 취급이 쉽고 깨끗하며 안전한 제품입니다. 높은 기술수준의 복잡하고 다양한 윤활 문제를 해결하기 위한 고품질의 윤활제 개발 또는 적용에서 도움이 필요하신 경우 루브캠코리아와 상담하십시오. 당사의 분야별 전문화된 기술진이 최선을 다해 도와 드리겠습니다.

| OUR CLIENT |

화학산업 분야	한화케미칼
자동차 분야	현대자동차, 기아자동차, GM, 평화Valeo, 한국GMB, 이레오토모티브, 평화정공, 화신, 동화, 센트랄, SL, ILJIN 외 각종 자동차 부품 제조사
전자 분야	엘지전자, 삼성전자, 동부대우전자, TOSHIBA
철강산업 분야	현대제철, 포항제철, 광양제철 외 기타 국내 철강사
베어링	세플러코리아(LUK, INA, FAG), GMB 베어링
섬유산업 분야	다수 섬유 기계 및 섬유 생산 및 가공 업체
시멘트산업 분야	아세아시멘트, 쌍용양회, (주)고려시멘트
국내 판매 총판 및 대리점	
해외 총판 및 대리점	





HYPER COMPRESSOR용 윤활제 및 특징

윤활제	LUBCHEM PE 270	LUBCHEM HC 220 W
제품 특장점	<ul style="list-style-type: none"> · FDA승인 받은 식품용 압축기 윤활유 · NSF H 1 등급 · 고온 안정성 · 탁월한 윤활성 · 장수명(Poly alkylene glycol-base oil) 	<ul style="list-style-type: none"> · FDA승인 받은 식품용 압축기 윤활유 · NSF H 1 등급 · LDPE 및 EVA 콤프레셔 전용 · 탁월한 윤활성
사용으로 인한 혜택	<ul style="list-style-type: none"> · 코팅용 폴리에틸렌 생산용 고압압축기 Lube oil로 특화된 윤활제(타용도 적용 가능) · Speed of Cylinder Lubricating Oil Pump (164 rpm, 250 rpm) · 고객의 요청에 따라 Antioxidant 처방가능 	<ul style="list-style-type: none"> · EVA 및 LDPE 제품에 폭넓게 적용 가능 · 2,500 Bar 이상 고압압축기 실린더 Life time 증대 · Speed of Cylinder Lubricating Oil Pump (164 rpm, 250 rpm)

제품용도

에틸렌 하이퍼 압축기유

- 폴리에틸렌 공정의 압축기유로 적합하게 설계된 제품
- 에틸렌 하이퍼 압축기에 적합하게 설계된 식품용 압축기유

왕복동 피스톤용 압축기유

- 암모니아 냉매용 왕복동 압축기에 최적의 윤활성 제공
- 암모니아 냉매에서 사용되는 대부분의 산화철 촉매를 보호
- 황이 포함되지 않음

성능 및 규격

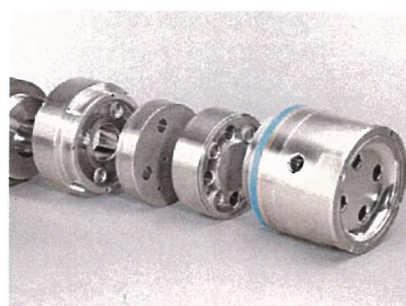
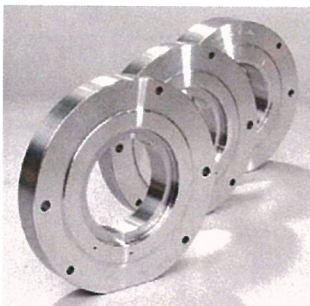
성능

- 압축기 실린더에 최적의 윤활성을 제공
- 폴리에틸렌 공정에 적합하며 물성에 영향을 주지 않음.
- 식품 접촉 가능성이 있는 윤활개소에 적합함.

규격

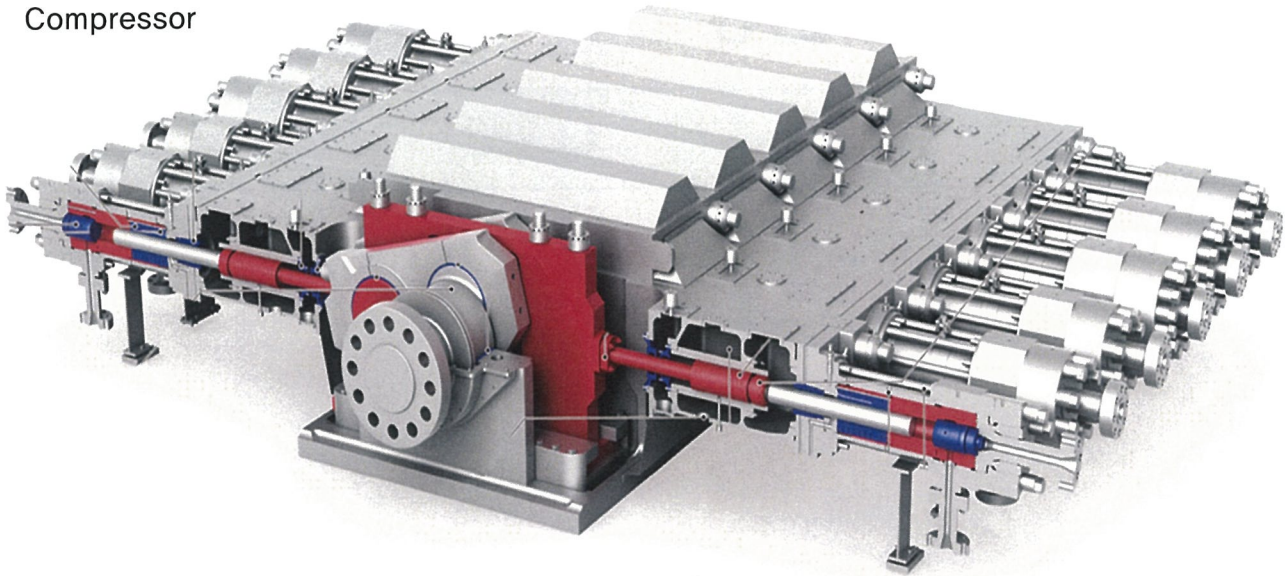
- ISO 6743-3, DGC class
- NSF H1
- 2002/72/EC
- Burckhardt compression

Packing

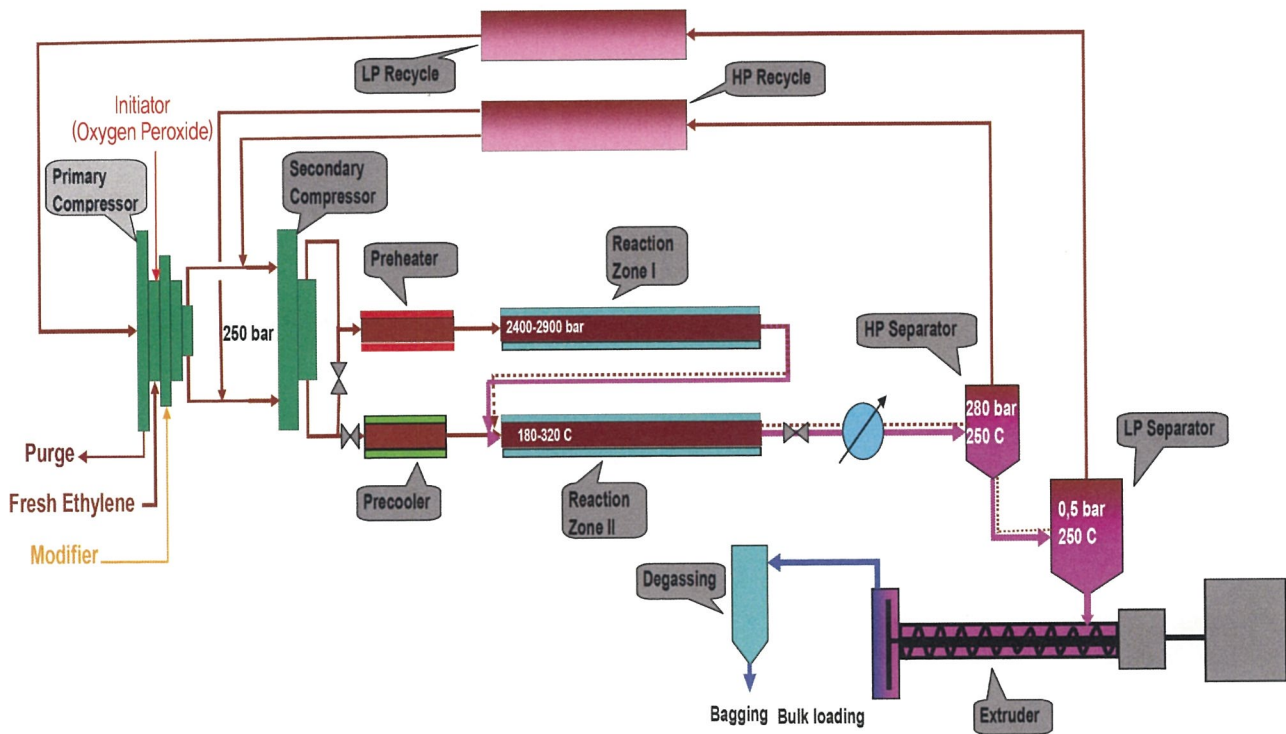


주요 윤활 적용 부위

Compressor



LDPE – Tubular process



LUBCHEM PE 270



시험항목 Test Item	단위 Unit	시험방법 Test Method	규격 Specification	시험결과 Test Result
색상 Color	-	-	Clear Liquid	Clear Liquid
동점도 Kinematic Viscosity	40°C	cSt	ASTM D 445	252 ~ 292
	100°C			-
점도지수 Viscosity Index	-	ASTM D 2270	> 200	234
인화점 Flash Point	°C	ASTM D 92	< 238	244
유동점 Pour Point	°C	ASTM D 97	< -2.5	-5.0
담점, 흐림점 Cloud Point	°C	ASTM D 2500	-	1
동판부식 Copper Corrosion	(100°C/3h) grade	ASTM D 4048	< 1	1a
비중 Density	(20°C) g/cm ³	ASTM D 4052	1.07 ~ 1.11	1.088
수분함량 Water Content	Wt. %	KS M 2058	-	0.02
황산화분 Sulfated Ash Content	Wt. %	ASTM D 874	-	0.01




LUBCHEM HC 220 W



시험 항목 Test Item	단위 Unit	시험 방법 Test Method	규격 Specification	시험 결과 Test Result
색상 Color	-	ASTM D 1500	Colorless	L 0.5
관능검사 Odor	-	Smell	Odorless	Odorless
비중 Density	(20°C) g/cm ³	ASTM D 4052	0.860 ~ 0.88	0.864
동점도 Kinematic Viscosity	40°C	cSt	ASTM D 445	214.0 ~ 228.0
	100°C			20.00 ~ 22.00
점도지수 Viscosity Index	-	ASTM D 2270	MIN 100	116
유동점 Pour Point	°C	ASTM D 97	MAX -13.0	-15.0
인화점 Flash Point, COC	°C	ASTM D 92	MIN 220	254
전산가 (T.A.N)	mgKOH/g	ASTM D 664	MAX 0.05	0.01



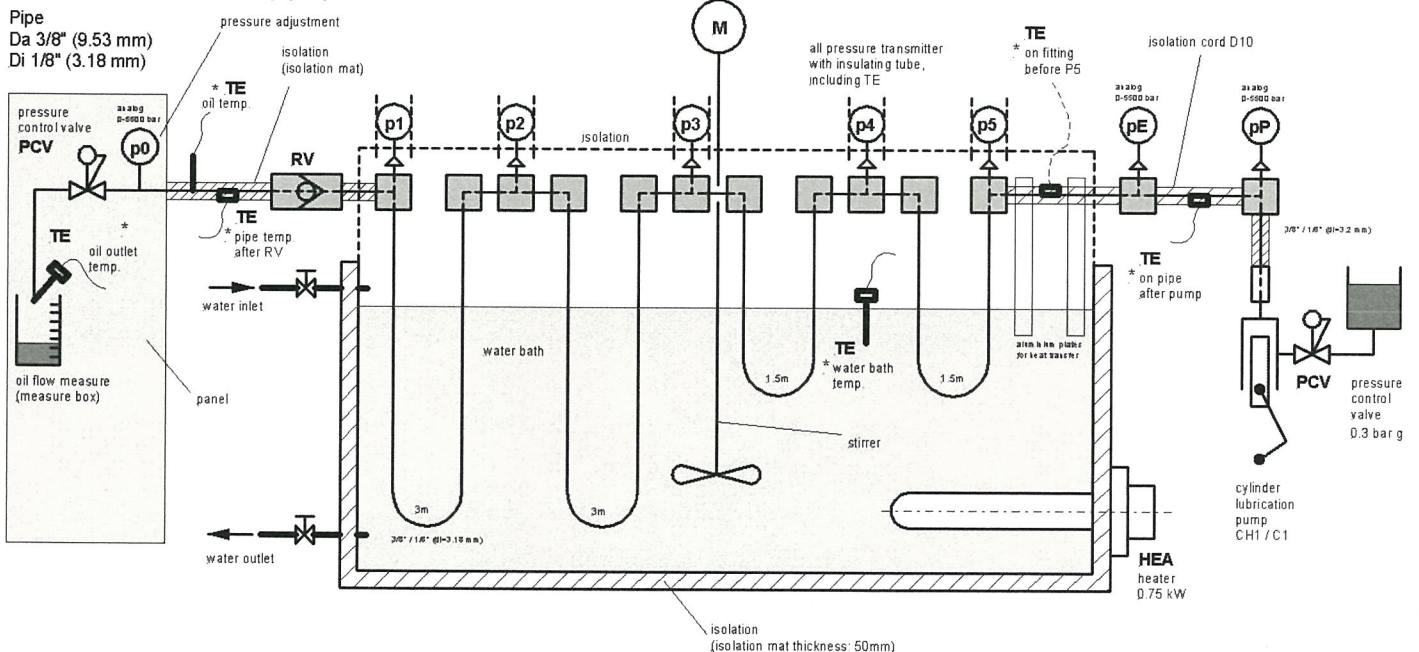
		Pumpability tested Cylinder Lubricants					(VSB) 1001180	Rev.K	Revision
Product Name	Product Name	Test Date	Viscosity at atmospheric pressure [mm ² /s]		Max. cylinder pressure with heated lubrication (MPa)			Speed of Cylinder Lubricating Oil Pump [rpm]	Remarks
			@ 40 °C	@ 100 °C	35°C	50 °C	70 °C		
LUBCHEM	LUBCHEM HC 220 W	04.10.2017	220.5	21.48	209	284	418	164	
	LUBCHEM HC 220 W	04.10.2017	220.5	21.48	202	282	421	250	
당사 제품이 164 rpm, 250 rpm에서 50°C 및 70°C에서 압력이 높아 사용에 유리함.									

※ 위 테스트는 오일 제조업체의 요청에 따라서 Burckhardt Compression AG는 Burckhardt Compression AG의 이차 컴프레서의 실린더 윤활제로서 적합성과 관련하여 LUBCHEM HC 220 W를 시험하였으며 Burckhardt Compression AG는 LUBCHEM HC 220 W가 Burckhardt Compression AG의 Hypercompressor에 아래와 같은 조건으로 사용이 적합함을 입증합니다.

PUMPABILITY TEST



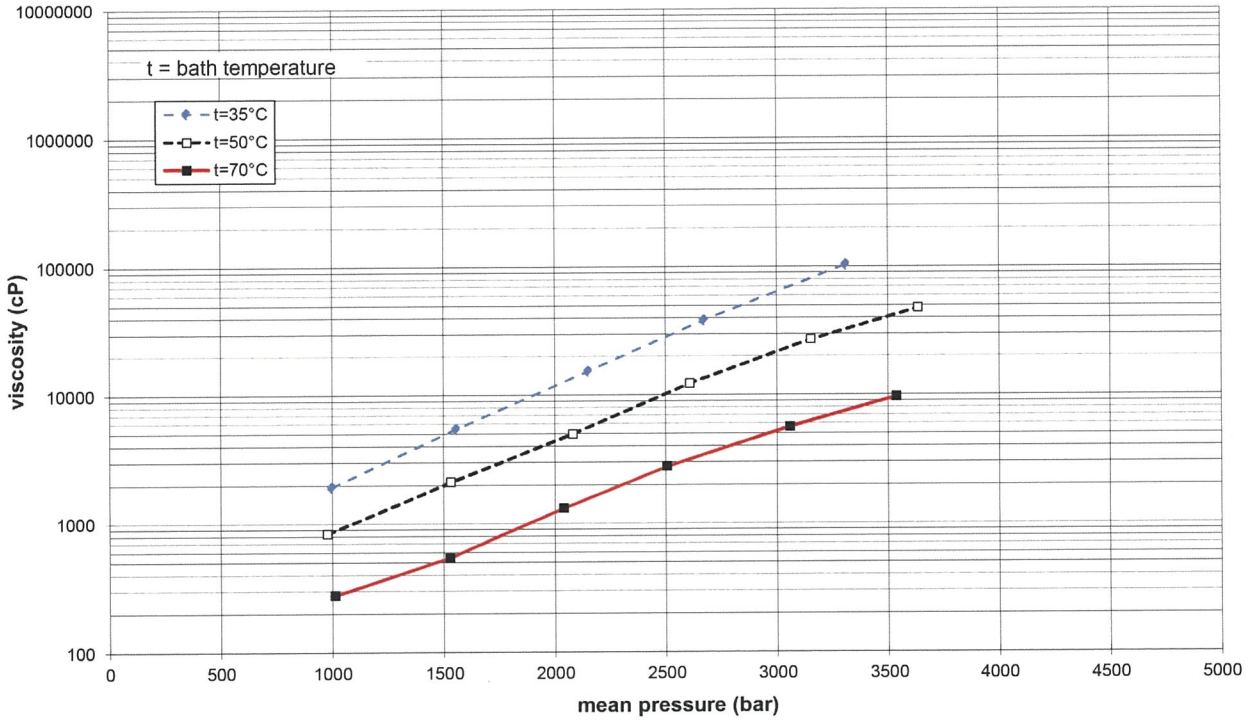
measurement setup (small pipes)





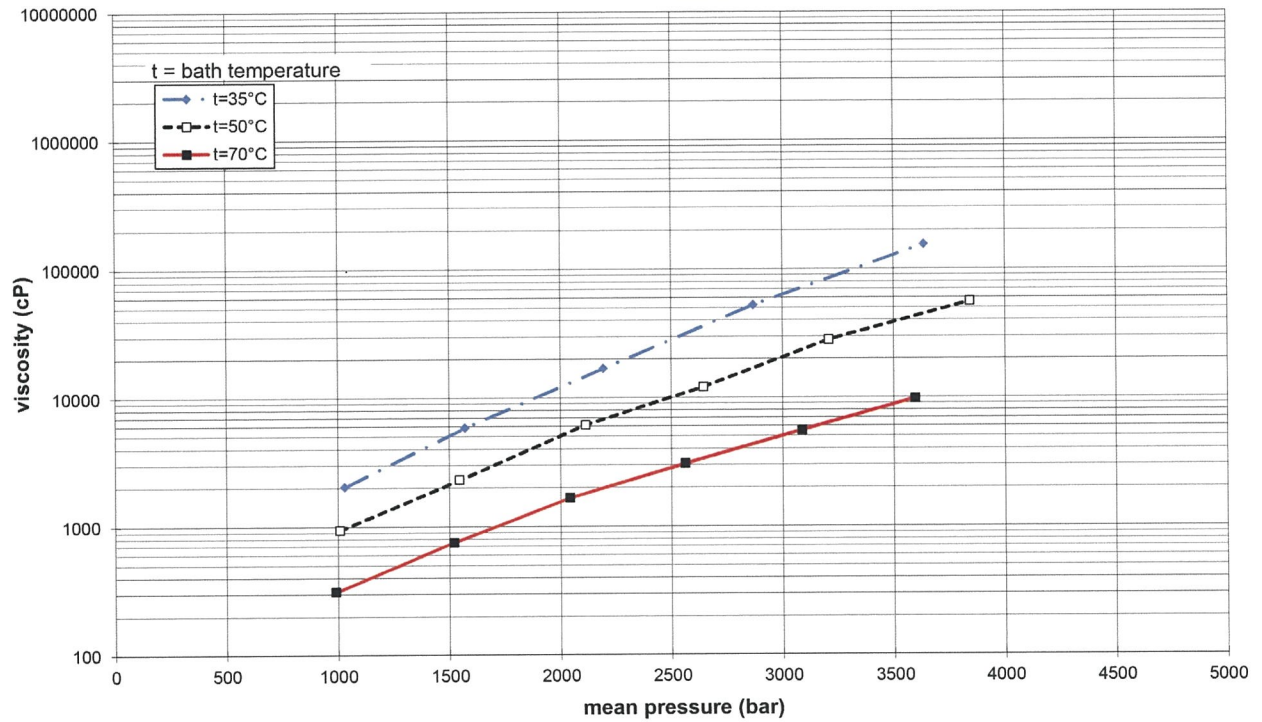
Viscosity in fct. of pressure
pump type = CH (164 U/min)

LUBCHEM HC 220 W



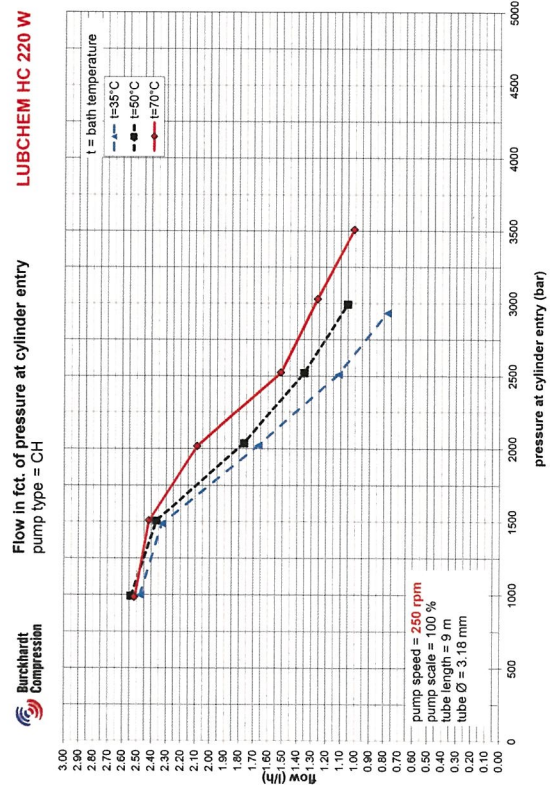
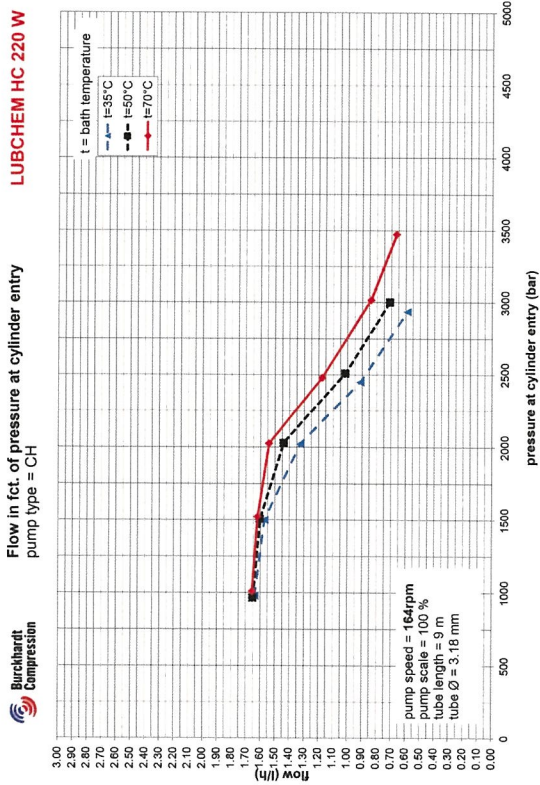
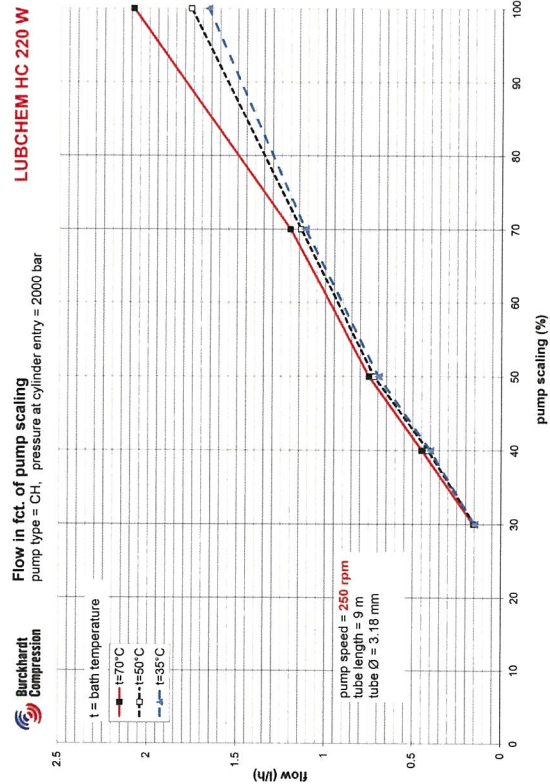
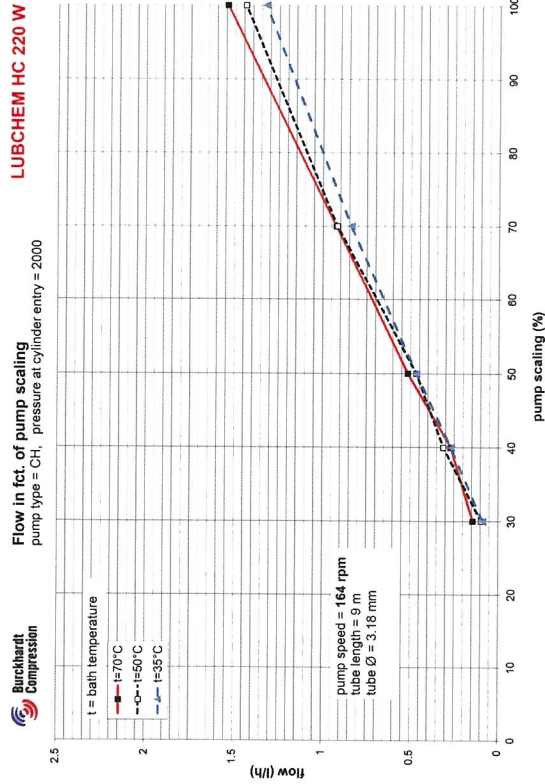
Viscosity in fct. of pressure
pump type = CH (250 U/min)

LUBCHEM HC 220 W





PUMPABILITY TEST





PE 270 FDA 인증서

Emery Research Institute
 4005 Linden Street, Unit #7
 Oakland, CA 94609
 email: barodinslab@pacbell.net
 "Solving Tomorrow's Problems Today"

9 July 2002 ERI Project Number: B200206001-a

Client: B n C Corp
 Room 1214, Iluung Bldg
 454-1 Kil-Dong, Kang Dong-Ku
 Seoul, 124-010 Korea
 FAX: 011-82-2-470-0645
 email: csh@ilungeo.com or 18891@hananet.net
 Attn: Mr. Y. H. Chung

Project: B n C Corp Request Number 20604

Sample: LUBCHEM PE 270
 The composition of Lubchem PE 270 is compressor oil (alpha-hydro-omega-hydroxypoly (oxyethylene) poly(oxypropylene) produced by random condensation of mixtures of ethylene oxide and propylene oxide containing 25 to 75 percent by weight of ethylene oxide; minimum molecular weight 1,500 with Chemical Abstracts Service Registry No. 9003-11-6.) for the production of PE chips. The PE chips are subjected to Conditions Of Use [175.200 Tables 1 & 2] "E", Room Temperature Filled - using Food Type "VI B" - Beverage, non-alcoholic.

B n C Corp Customer Name: LUBCHEM Co. Ltd.
 4L 95B, 2-3 Horim-Dong, Dalseo-gu, Daegu, Korea

Test Requested: FDA 21 CFR 178.3570 (a)(3) - Addition to food not to exceed 10 ppm.

Background: 21 CFR Section 178.3570 describes specifications and limitations for lubricants with incidental food contact. Section (a)(3) includes a variety of materials which may be used in the production of such lubricants and the limitations of use of those materials. As we know the PE chips provided as the sample used the Lubchem PE 270 product. Our testing of the PE chips sample provided used the 24 hour, 120°F water extraction specified.

Continued on page 2.


Page 2 of 2 9 July 2002
 Emery Research Institute Report to B n C Corp of Korea
 ERI Project Number: B200206001-a
 Project: B n C Corp Request Number 20604
 Sample: LUBCHEM PE 270
 Test Requested: FDA 21 CFR 178.3570 (a)(3) - Addition to food not to exceed 10 ppm.

ANALYSIS: The extract prepared as described on page 1 was filtered thru a 0.45 micron nylon 66 HPLC grade syringe filter and injected on HPLC [reversed phase, C18, 4.6x250mm, 3 micron] with MS detection using an all Shimadzu system [LCMS QP-8000 alpha]. The analysis used a gradient from 100% water to 100% acetonitrile: Methanol [50:50] in 60 minutes. A 0.2 mL injection volume was used. Flow rate was constant at 1.0 mL/minute. A "control solution" consisting of a 50:50 acetonitrile:water extract [via sonication at room temperature for 4 hours] was prepared of the sample material [PE chips]. This was likewise assayed as above.

Additional Analysis: A separate portion of the water extract [described in page 1] was evaporated to dryness on a hotplate in a tared aluminum dish. The weight of residue found was less than 0.001% of the starting sample weight [none detectable residue].

Findings: The PE chips submitted contain insufficient residues [actually no detectable residues] of the Lubchem PE 270 material to cause greater than 10 ppm addition to a food product contacted by the PE material. In fact our analysis appears to indicate the submitted PE chips sample itself contains less than 10 ppm [ng/kg] of Lubchem PE 270 residue.

Conclusion: The sample submitted meets the requirement of 21 CFR 178.3570(a)(3)

Respectfully submitted

 A. P. Borodin, Ph.D.
 Technical Director
 Emery Research Institute

HC 220 W NSF 인증서

NSF NSF International / Nonfood Compounds Registration Program

Nonfood Compounds

September 20, 2017

Mr. Byeongkool (B.K.) Lim
 Lubchem Co., Ltd
 M1 Technopark 20, Dalseo-daero 109-gil
 Dalseo-gu, Daegu 704-801
 Republic of Korea

RE: LUBCHEM HC 220 W
 Category Code: H1
 NSF Registration No. 156229

Dear Mr. Byeongkool (B.K.) Lim:


NSF has processed the application for Registration of LUBCHEM HC 220 W to the NSF International Registration Guidelines for Proprietary Substances and Nonfood Compounds (2013), which are available upon request by contacting nsf@nsf.org. The NSF Nonfood Compounds Registration Program is a continuation of the USDA product approval and listing program, which is based on meeting regulatory requirements including FDA 21 CFR for appropriate use, ingredient and labeling review.

This product is acceptable as a lubricant with incidental food contact (H1) for use in and around food processing areas. Such compounds may be used on food processing equipment as a protective anti-rust film, as a release agent on gaskets or seals of tank closures, and as a lubricant for machine parts and equipment in locations in which there is a potential exposure of the lubricated part to food. The amount used should be the minimum required to accomplish the desired technical effect on the equipment. If used as an anti-rust film, the compound must be removed from the equipment surface by washing or wiping, as required to leave the surface effectively free of any substance which could be transferred to food being processed.

NSF Registration of this product is current when the NSF Registration Mark and Category Code appear on the NSF-approved product label, and the Registered product name is included in the current NSF White Book Listing of Nonfood Compounds at the NSF website (www.nsfwhitebook.org).

NSF Listing of all Registered Nonfood compounds by NSF International is not an endorsement of those compounds, or of any performance or efficacy claims made by the manufacturer.

Registration status may be verified at any time via the NSF website, at www.nsfwhitebook.org. Changes in formulation or label, without the prior written consent of NSF, will void Registration, and will supersede the on-line listing. Please contact your NSF Project Manager or nsf@nsf.org if you have any questions or concerns pertaining to this letter.

Sincerely,

 Carolyn Gilliland
 NSF Nonfood Compounds Registration Program
 Company No. C0234540

NSF NSF International / Nonfood Compounds Registration Program

Official Listing

NSF International certifies that the products appearing on this Listing conform to the requirements of the NSF Nonfood Compounds Registration Program. This is the Official Listing recorded on October 6, 2017.

Lubchem Co., Ltd.
 M1 Technopark 20, Dalseo-daero 109-gil
 Dalseo-gu, Daegu 704-801
 Republic of Korea
 82 53 625 4833

Product Designation	Registration Number	Category Code
LUBCHEM HC 220 W	156229	H1
LUBCHEM HP 2122 PF	155229	H1
LUBCHEM HP 1101	150713	H2
LUBCHEM PF 8081 MS	153947	H1
LUBCHEM PF 8092 MS	152945	H1

H1 Lubricants with incidental contact.
 H2 Lubricants with no food contact.

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International. 1 of 1

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C0234540

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본 사 | 대구광역시 달서구 달서대로 109길 20 MJ테크노 206호 TEL.053-625-4833 FAX.053-582-6723

공 장 | 경북 고령군 다산면 다산산단로 172 TEL.054-954-8500 FAX.054-954-0131

 www.lubchem.co.kr  global@lubchemkorea.co.kr