

217/785-1705

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- REVISED

PERMITTEE

Korex Chicago, LLC
Attn: James Barca and Ofelia Pugada
6200 West 51st Street
Chicago, Illinois 60638

Application No.: 99120070 I.D. No.: 031821ABF
Applicant's Designation: DETERMANUFPLNT Date Received: May 9, 2011
Subject: Detergent Manufacturing Plant
Date Issued: December 1, 2011 Expiration Date: November 14, 2013
Location: 6200 West 51st Street, Chicago, Cook County, 60638

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

8000 Gallon HCl Storage Tank;
4000 Gallon HCl Blend Tank;
6000 Gallon HCl Holding Tank;
Railcar Unloading Track 2 Controlled by Dust Collector;
Five (5) Storage Silos Controlled by Dust Collector;
Weigh Hopper Controlled by Dust Collector;
Raw Material Bucket Elevator Controlled by Dust Collector;
Spray Drying Tower Controlled by Wet Scrubber and Dust Collector;
Packaging Bucket Elevator Controlled by Dust Collector;
Packaging Room Controlled by Two (2) Dust Collectors;
Conveyors Controlled by Dust Collectors; and
Natural Gas-Fired Furnace

pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued:
 - i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Particulate Matter less than 10 microns (PM₁₀) and 10 tons/year for any single hazardous air pollutant (HAP) and 25 tons/year for any combination of such HAPs). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.
 - ii. To limit the potential emissions of VOM from the source to less than 25 tons/year. As a result, the source is excluded from the requirement of 35 Ill. Adm. Code Part 205, Emission Reduction Market System. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.

- iii. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so that the spray drying tower is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart QQ (Miscellaneous Formulation Manufacturing Process), 35 Ill. Adm. Code Part 218 Subpart RR (Miscellaneous Organic Chemical Manufacturing Processes), and 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).
 - iv. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so that the source is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
 - c. This permit supersedes all operating permit(s) for this location.
- 2a. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.
 - b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 foot) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.
 - c. Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.
 - d. Pursuant to 35 Ill. Adm. Code 212.306, all normal traffic pattern access areas surrounding storage piles specified in 35 Ill. Adm. Code 212.304 and all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 Ill. Adm. Code 212.309, 212.310 and 212.312.

- e. Pursuant to 35 Ill. Adm. Code 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.
- f. Pursuant to 35 Ill. Adm. Code 212.309(a), the emission units described in 35 Ill. Adm. Code 212.304 through 212.308 and 35 Ill. Adm. Code 212.316 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 Ill. Adm. Code 212.310 and 212.312, and prepared by the owner or operator and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions.
- g. Pursuant to 35 Ill. Adm. Code 212.310, as a minimum the operating program shall include the following:
 - i. The name and address of the source;
 - ii. The name and address of the owner or operator responsible for execution of the operating program;
 - iii. A map or diagram of the source showing approximate locations of storage piles, conveyor loading operations, normal traffic pattern access areas surrounding storage piles and all normal traffic patterns within the source;
 - iv. Location of unloading and transporting operations with pollution control equipment;
 - v. A detailed description of the best management practices utilized to achieve compliance with 35 Ill. Adm. Code 212 Subpart K, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized;
 - vi. Estimated frequency of application of dust suppressants by location of materials; and
 - vii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.
- h. Pursuant to 35 Ill. Adm. Code 212.312, the operating program shall be amended from time to time by the owner or operator so that the operating program is current. Such amendments shall be consistent with 35 Ill. Adm. Code 212 Subpart K and shall be submitted to the Illinois EPA for its review.
- i. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other

similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

3. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- 4a. Pursuant to 35 Ill. Adm. Code 218.122(a), no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading facility having through-put of greater than 151 cubic meters per day (40,000 gallons/day) into any railroad tank car, tank truck or trailer unless such loading facility is equipped with submerged loading pipes, submerged fill, or a device that is equally effective in controlling emissions and is approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201.
- b. Pursuant to 35 Ill. Adm. Code 218.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe, submerged fill, or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201 or unless such tank is a pressure tank as described in Section 218.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 218.121(b)(2).
- c. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material.
5. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hydrochloric Acid Production, 40 CFR 63 Subpart NNNNNN. Pursuant to 40 CFR 63.8985(a), you are subject to 40 CFR Subpart NNNNNN if you own or operate an HCl production facility that produces a liquid HCl product at a concentration of 30 weight percent or greater during its normal operations and is located at, or is part of, a major source of HAP. This does not include HCl production facilities that only produce occasionally liquid HCl product at a concentration of 30 weight percent or greater.
6. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hour (25 mph). Determination of wind speed for the purposes of this rule shall be by a one-hour average

or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to this rule is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

- 7a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.
- c. All fuel combustion equipment at this source shall only be operated with natural gas as the fuel. The use of any other fuel requires that the Permittee first obtain a construction permit from the Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.
- d. This permit is issued based on Clean-up Solvents used at the source containing no VOM or HAP materials.
- e. This permit is issued based on the pure HCl concentration in solution not exceeding 37% by weight.
- f. This permit is issued based on no HAPs used at the facility except HCl in the storage, blending and holding tanks.
- 8a. Emissions and operation of the HCl blending tank shall not exceed the following limits:

HCl Throughput (includes all water added)		Emission Factor	HCl Emissions	
(Gallons/Month)	(Gallons/Year)	(Lbs/1000 gal)	(Tons/Month)	(Tons/Year)
220,000	2,200,000	2.05	0.45	4.50

These limits are based on a multiplication factor of 2 for loading/unloading and using the following standard emission estimation equation for vapor displacement of petroleum liquid transfer (Section 5.2, AP-42 (Fifth Edition, Volume I, July 2008):

$$2.05 \text{ lb/Kgal} = 12.46 * 1.0(\text{submerged loading}) * 2.3 \text{ psia @ } 10 \text{ deg Celsius for } 18\% \text{ sol'n} * 36.5 \text{ lb/lb-mole} / 460R + 50 \text{ deg F (average)}$$

- b. This permit is issued based on negligible emissions of Hydrogen Chloride Gas from the HCl storage and holding tanks. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
- c. Emissions and operation of the equipment shall not exceed the following limits:

<u>Equipment</u>	<u>Process Weight Rate</u>		<u>Emission Factor (lb/Ton)</u>	<u>Control Efficiency (%)</u>	<u>PM Emissions</u>	
	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>			<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Railcar Unloading (Track 2)	5,800	58,000	0.032	99	0.01	0.10
5 Storage Silos	16,900	169,000	0.73	99	0.06	0.62
Weigh Hopper	16,900	169,000	0.0048	99	0.01	0.02
Raw Material						
Bucket Elevator	60	600	0.73	99	0.0003	0.003
Spray Drying Tower	16,900	169,000	90.0	99.1	7.02	70.21
Packaging Bucket						
Elevator	16,900	169,000	0.73	99	0.06	0.62
Packaging Room	16,900	169,000	1.8	99	0.16	1.55
Conveyors	16,900	169,000	0.36	99	0.03	<u>0.30</u>
					Total:	<u>73.42</u>

These limits define the actual emissions of PM and are based on maximum material processed and standard emission factors (AP 42, Fifth Edition, Volume I: Table 11.26-1 Supplement A November 1995 for packaging; Table 11.19.2-2 for conveyors; Table 11.12-2 June 2006 for Silos, Hopper and Elevators; Table 9.9.1-1 for Unloading; and Table 6.8-1 July 1993 for Spray Tower). The control efficiency for the wet scrubber and dust collector associated with the spray drying tower is based on the minimum efficiency required to comply with 35 Ill. Adm. Code 212.321.

- d. Emissions and operation of the furnace and all other natural gas-fired combustion equipment shall not exceed the following limits:

<u>Material</u>	<u>Usage</u>		<u>Pollutant</u>	<u>Emission Factor (lb/mmscf)</u>	<u>Emissions</u>	
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>			<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Natural Gas	22.7	227	CO	84.0	0.95	9.53
			NO _x	100.0	1.14	11.35
			PM	7.6	0.09	0.86
			SO ₂	0.6	0.01	0.07
			VOM	5.5	0.06	0.62

These limits are based on the maximum fuel usage and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- e. Emissions of volatile organic material (VOM) added after the material is processed through the spray dryer towers shall not exceed the following limits:

Process Weight Rate		Emission Factor	VOM Emissions	
(Tons/Month)	(Tons/Year)	(lbs/Ton)	(Tons/Month)	(Tons/Year)
16,900	169,000	0.15	1.27	12.70

These limits define the potential emissions of VOM and are based on maximum material processed, maximum VOM contents, and all VOM in material being emitted.

- f. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from the source shall not exceed 0.79 tons/month and 7.9 tons/year of any single HAP and 1.99 tons/month and 19.9 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirements to obtain a CAAPP Permit from the Illinois EPA.
- g. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 9a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
 - i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or

ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

- b. Testing required by Condition 10 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
10. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
11. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.
12. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

13. Pursuant to 35 Ill. Adm. Code 218.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 218.119 shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 Ill. Adm. Code Part 218 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.
- 14a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
 - i. Records addressing use of good operating practices for the dust collectors and wet scrubber:
 - A. Records for periodic inspection of the dust collectors and wet scrubber with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - ii. HCL Solution throughput (gallons/month and gallons/year);
 - iii. HCL concentration (% weight);
 - iv. Process weight rate for all equipment listed in Conditions 10e and h(tons/month and tons/year);
 - v. Natural gas usage for the source (mmscf/month and mmscf/year); and
 - vi. Monthly and annual emissions of CO, NO_x, PM, SO₂, VOM and HAPs from the source with supporting calculations (tons/month and tons/year).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
15. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

16. Pursuant to 35 Ill. Adm. Code 218.990, upon request by the Illinois EPA, the owner or operator of an emission unit which is exempt from the requirements of 35 Ill. Adm. Code 218 Subparts PP, QQ, RR, TT or 35 Ill. Adm. Code 218.208(b) shall submit records to the Illinois EPA within 30 calendar days from the date of the request that document that the emission unit is exempt from those requirements.
- 17a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.
- b. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

Please also note, this permit has been revised to increase natural gas usage, correct emission factor for weigh hopper, and to increase VOM emission factor for Spray Tower.

If you have any questions on this, please call Randy Solomon at 217/785-1705.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:RBS:psj

cc: Illinois EPA, FOS Region 1
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emission of the detergent manufacturing plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from the plant. The resulting maximum emissions are below the threshold levels (e.g., 100 tons/year for PM₁₀, 10 tons/year for any single HAP, and 25 tons/year for any combination of such HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program (CAAPP). Actual emissions from this source will be less than predicted in this summary to the extent that production is less than that required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						<u>Single HAP</u>	<u>Total HAPs</u>
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>			
HCl Blending Tank						4.50	4.50	
HCl Storage and Holding Tanks						0.44	0.44	
Railcar Unloading (Track 2)			0.10					
5 Storage Silos			0.62					
Weigh Hopper			0.02					
Raw Material								
Bucket Elevator			0.003					
Spray Drying Tower			70.21		12.70			
Packaging Bucket Elevator			0.62					
Packaging Room			1.55					
Conveyors			0.30					
Fuel Combustion	<u>9.53</u>	<u>11.35</u>	<u>0.86</u>	<u>0.07</u>	<u>0.62</u>	<u>-----</u>	<u>-----</u>	
Totals	<u>9.53</u>	<u>11.35</u>	<u>74.28</u>	<u>0.07</u>	<u>13.32</u>	<u>7.90</u>	<u>19.90</u>	

RBS:psj