State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN122220003-22

May 9, 2022

Rob Coult
Balchem Corporation, Inc.
1774 West 2800 South
Ogden, UT 84401
RCoult@Balchem.com

Dear Mr. Coult:

Re: Approval Order:
Modification to Approval Order DAQE-AN122220002-21 to Add an R&D Line
Project Number: N122220003

The attached Approval Order (AO) is issued pursuant to the Notice of Intent (NOI) received on September 28, 2021. Balchem Corporation, Inc. must comply with the requirements of this AO, all applicable state requirements (R307), and Federal Standards.

The project engineer for this action is **Sarah Foran**, who can be contacted at (385) 306-6724 or sforan@utah.gov. Future correspondence on this AO should include the engineer's name as well as the DAQE number shown on the upper right-hand corner of this letter. No public comments were received on this action.

Sincerely,

Bryce C. Bird
Director

BCB:SF:sa

cc: Weber-Morgan Health Department

STATE OF UTAH
Department of Environmental Quality
Division of Air Quality

APPROVAL ORDER
DAQE-AN122220003-22
Modification to Approval Order DAQE-AN122220002-21 to Add an R&D Line

Prepared By
Sarah Foran, Engineer
(385) 306-6724
sforan@utah.gov

Issued to
Albion Manufacturing Technologies, Inc. - Food Supplements Production Facility

Issued On
May 9, 2022

Issued By

Bryce C. Bird
Director
Division of Air Quality

TABLE OF CONTENTS

GENERAL INFORMATION

CONTACT/LOCATION INFORMATION

Owner Name
Balchem Corporation, Inc.

Source Name
Albion Manufacturing Technologies, Inc.- Food Supplements Production Facility

Mailing Address
1774 West 2800 South
Ogden, UT 84401

Physical Address
1774 West 2800 South
Ogden, UT 84401

Source Contact
Name Rob Coult
Phone (385) 278-9493
Email RCoult@Balchem.com

UTM Coordinates
414,305 m Easting
4,563,124 m Northing
Datum NAD83
UTM Zone 12

SIC code 2833 (Medicinal Chemicals & Botanical Products)

SOURCE INFORMATION

General Description
Albion Manufacturing Technologies Facility (Albion) under the ownership of Balchem Corporation, Inc, operates a Food Supplements Production Facility. The plant produces nutritional supplements using feedstocks including magnesium, manganese, calcium, chromium, vanadium, zinc, and iron. Total production on site equates to 14,000 tons/year of product from the box dryer and tower dryer lines, and 1.2 million pounds/year of supplements from the granulation line.

NSR Classification
Minor Modification at Minor Source

Source Classification
Located in Northern Wasatch Front O3 NAA, Salt Lake City UT $PM_{2.5}$ NAA
Weber County
Airs Source Size: B

Applicable Federal Standards
MACT (Part 63), A: General Provisions
MACT (Part 63), VVVVVV: National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources

Project Description
Albion requested a modification to AO DAQE-AN122220002-21 dated September 14, 2021 to add a research and development (R&D) line. The new line will mimic the existing granulation line and tower dryer line. The line will function to test-run material prototype mixtures, before introducing the product into full production. The new R&D granulation line will include a mixing tank, a fluidized bed dryer and a wet scrubber (#2). The R&D Tower dryer process line will include a spray tower dryer, a wet process mixing tank, a cyclone separator, a baghouse (#3), and a liquefier. The liquefier and mixing tank are wet processes leading into the tower dryer. The tower dryer is controlled by the baghouse. All R&D tower

dryer emissions will vent through the new baghouse (#3). The maximum throughput of the R&D line was estimated at 0.6 tons per year (included in condition II.B.1.a). The increase in emissions is below a hundredth of a ton for each pollutant, therefore, the summary of emissions has not changed as a result of this modification. II.A.15 was clarified as rated at 7.876 MMBtu/hr, for formatting consistency however, the boiler will remain listed with a rating of 7.88 MMBtu/hr in this AO.

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
CO_2 Equivalent	0	4058.46
Carbon Monoxide	0	8.95
Nitrogen Oxides	0	12.54
Particulate Matter - PM_{10}	0	1.27
Particulate Matter - $PM_{2.5}$	0	0.26
Sulfur Dioxide	0	0.09
Volatile Organic Compounds	0	0.87

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Generic HAPs (CAS #GHAPS)	0	15
	Change (TPY)	**Total (TPY)**
Total HAPs	0	0.01

SECTION I: GENERAL PROVISIONS

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]

I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]
I.8	The owner/operator shall submit documentation of the status of construction or modification to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO or if construction is discontinued for 18 months or more. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18]

SECTION II: PERMITTED EQUIPMENT

II.A THE APPROVED EQUIPMENT

II.A.1	**Food Supplements Production Facility**
II.A.2	**One (1) Boiler** Rating: 6.28 MMBtu/hr Fuel: Natural Gas Burner Type: Low NO_x Burner
II.A.3	**Box Dryer Process Line**
II.A.4	**Two (2) Liquefiers** Process rate: 1,100 lb/hr Wet process, included for informational purposes
II.A.5	**One (1) Mixing Tank** Control: Box Baghouse and Cyclone
II.A.6	**One (1) Box Dryer** Fuel: Natural Gas Consumption Rate: 6,000 ft3/hr Control: Box Baghouse and Two (2) Cyclones
II.A.7	**Tower Dryer Process Line**
II.A.8	**One (1) Mixing Tank**
II.A.9	**Two (2) Liquefiers** Process rate: 2,100 lb/hr Wet process, included for informational purposes
II.A.10	**One (1) Tower Dryer/Baghouse** Fuel Type: Natural Gas Max Consumption Rate: 10,000 ft3/hr Control: Box Baghouse and Two (2) Cyclones
II.A.11	**One (1) Granulation Line**
II.A.12	**One (1) Mixing Tank (dry)** Control: Venturi Wet Scrubber

II.A.13	**Two (2) Fluidized Bed Dryers** Control: One baghouse each Max Flow Rate: 5,600 cfm Each
II.A.14	**One (1) Processing Tank** included for informational purposes
II.A.15	**One (1) Steam Generator** Rating: 7.88 MMBtu/hr Fuel: Natural Gas
II.A.16	**R&D Granulation Line (NEW)** Includes: One (1) Mixing Vessel Control: Venturi Wet Scrubber (#2) One (1) Fluidized Bed Dryer (#3) Control: HEPA Filter
II.A.17	**R&D Tower Dryer Process Line (NEW)** Includes: One (1) Liquefier (wet process) One (1) Mixing Tank (wet process) One (1) Spray Tower Control: R&D Baghouse #3 (Rating: 265 CFM) One (1) Cyclone Separator Control: R&D Baghouse #3 (Rating: 265 CFM)

SECTION II: SPECIAL PROVISIONS

II.B REQUIREMENTS AND LIMITATIONS

II.B.1	**Site-Wide Requirements**
II.B.1.a	The owner/operator shall not exceed the following production limits per rolling 12-month period: A. 14,000 tons of product from the Box and Tower Dryer Lines B. 1,200 tons of supplement from the Granulation Line C. 600 tons of Ferrochel D. 0.6 tons from the R&D Granulation Line E. 0.6 tons from the R&D Tower Dryer Process Line [R307-401-8]

II.B.1.a.1	Compliance with the annual limitations shall be determined on a rolling 12-month total. The owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of production shall be kept for all periods when the plant is in operation. The records of production shall be kept on a daily basis. Hours of operation shall be determined by supervisor monitoring and maintaining of an operations log. [R307-401-8]
II.B.1.b	The owner/operator shall not allow visible emissions to exceed the following opacities: A. Boiler - 5% B. Baghouses, Cyclones, Scrubbers, and Steam Generator - 10% C. All other points - 20% [R307-401-8]
II.B.1.b.1	Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-305-3]
II.B.1.c	The owner/operator shall route emissions to the applicable control device as listed in Section II.A of this AO. [R307-401-8]
II.B.1.d	The owner/operator shall install a manometer or magnehelic pressure gauge to measure the differential pressure across each baghouse. The baghouses shall operate within the static pressure ranges recommended by the manufacturers. [R307-401-8]
II.B.1.d.1	Pressure drop readings for each baghouse shall be recorded at least once during each day of operation while the baghouse is operating. Records documenting the pressure drop shall be kept in a log and shall include the following: A. Unit identification; B. Manufacturer recommended pressure drop for the unit; C. Daily/Weekly pressure drop readings; D. Date of reading [R307-401-8]
II.B.1.d.2	Each pressure gauge shall be located such that an inspector/operator can safely read the indicator at any time. [R307-401-8]
II.B.1.d.3	Each pressure gauge shall be calibrated in accordance with the manufacturer's instructions or recommendations or replaced at least once every 12 months to ensure accuracy within plus or minus one inch of water column. Documentation of calibrations and replacements shall be maintained. [R307-401-8]
II.B.1.e	The owner/operator shall ensure the venturi wet scrubber flow rate is no less than 51 ft^3/s. [R307-401-8]
II.B.1.e.1	Flow rate readings shall be recorded at least once during each day of operation while the scrubber is operating. [R307-401-8]

PERMIT HISTORY

This Approval Order shall supersede or will be based on the following documents:

Supersedes	AO DAQE-AN122220002-21 dated September 14, 2021
Is Derived From	NOI dated September 28, 2021
Incorporates	Additional Information dated February 1, 2022

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by Environmental Protection Agency to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - Title 40 of the Code of Federal Regulations Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal Division of Air Quality use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - Title 40 of the Code of Federal Regulations 52.21 (b)(49)(i)
GWP	Global Warming Potential - Title 40 of the Code of Federal Regulations Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds