

**Annual Report for Year 2 (2023-2024) of the
Time Limited Water Quality Standard for Chloride**

July 1, 2024

Prepared by the Village of Crestwood



The Village of Crestwood is a
member of the Chicago Area
Waterways Chloride Workgroup



1.0 Introduction to Chloride Issue in CAWS/LDPR

This Annual Report has been prepared by the Village of Crestwood to report on progress in meeting the requirements for the Time Limited Water Quality Standard for Chloride. The Village of Crestwood is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Chicago Area Waterways System and Lower Des Plaines River watersheds. This Annual Report has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

On November 4, 2021, the IPCB issued an Opinion and Order for a Time Limited Water Quality Standard (TLWQS) for Chloride for portions of the CAWS and Lower Des Plaines River watersheds. The TLWQS for Chloride watersheds are defined in the Opinion and Order as the Des Plaines River watershed from the Kankakee River to the Will County Line (except for the DuPage River watershed) and the CAWS watershed (except the North Branch Chicago River watershed upstream of the North Shore Channel and those portions of the watershed located in Indiana). This is a watershed-based approach to reduce the chloride concentrations in the CAWS and Lower Des Plaines River. The TLWQS for Chloride requires all dischargers covered under the TLWQS for Chloride to create PMPs and implement specific best management practices based on their operations to reduce their chloride discharges.

2.0 Organization Information

Agency Name: Village of Crestwood		
Permit No.: ILG103065 / MS4 Permit No.: IRL400320		
Agency Address: 13800 S. Cicero Ave.		
City: Crestwood	State: Illinois	Zip Code: 60418

Crestwood is an MS4 community. Crestwood maintains 77.5 actual lane miles, with 40 center-line miles. Crestwood is responsible for providing snow and ice control for its streets, including four (4) Village-owned parking lots. Parking lots consist of a Village Hall (which includes the Village Police Station and Fire Station), a Public Works facility, a recreational center, and a senior center. The only sidewalk maintained is in front of the Village Hall.

2.1 Level of Service for Winter Maintenance Activities

Crestwood uses five (5) snow plow trucks, with three (3) trucks having a 10-ton salt capacity and two (2) trucks having a 2-ton salt capacity. Crestwood’s snow plows spread salt over its 77.5 lane miles as needed during the winter season. Crestwood also maintains approximately 70,180 square feet of parking lots and a sidewalk. Crestwood has one salt-storage facility, which is fully enclosed, and the salt is stored inside on an impervious pad. Crestwood’s salt trucks park immediately outside of the door to the salt dome and the salt is then loaded into the trucks. Any salt spilled is either spread to cover the adjacent parking area or it is swept back up and place back inside the salt dome.

Crestwood’s goal is to make all streets, its sidewalk, and parking lots safe and accessible for vehicular and pedestrian traffic during and after a winter storm. Crestwood uses level of service goals for the roadways it maintains as guidelines to implement snow and ice operations during a storm. Specific information regarding Crestwood’s guidelines is detailed in the Snow and Ice Plan, attached as Exhibit A.

3.0 Best Management Practices

As part of the Chloride TLWQS, specific best management practices (“BMPs”) were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. Further details about winter maintenance practices currently being implemented by the Village of Crestwood are included in the Snow and Ice Plan, which is included as Exhibit A. Details regarding the Village of Crestwood’s implementation of the BMPs identified as part of the TLWQS for Chloride are also included below.

Workgroup BMP

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
The permittee must participate in a Chlorides workgroup for the CAWS or	The Village of Crestwood has been a member of the Chicago Area Waterways Chloride Workgroup since 2021. Crestwood has participated in all workgroup meetings and has attended required workshops and training seminars.

LDPR, depending on the watershed within which the facility's discharge is located.	
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Salt Storage and Handling BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	All salt stored by Crestwood is stored in a fully-enclosed permanent dome structure on an impervious concrete pad to prevent contact with stormwater.
Cover salt piles at all times except when in active use, unless stored indoors.	All salt stored by Crestwood is stored in a fully-enclosed permanent dome structure on an impervious concrete pad to prevent contact with stormwater.
For working areas, provide berms and or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.	Crestwood's salt trucks park immediately outside of the door to the salt dome and the salt is then loaded into the trucks. Any salt spilled is either spread to cover the adjacent parking area or it is swept back up and place back inside the salt dome. Any excess salt from the working area does not come into contact with the stormwater system. Crestwood's salt trucks are cleaned inside a building with a triple catch basin system.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	All salt stored by Crestwood is stored in a fully-enclosed permanent dome structure on an impervious concrete pad to prevent contact with stormwater.
Good housekeeping practices must be implemented at the site, including: <ul style="list-style-type: none"> • cleanup of salt at the end of each day or conclusion of a storm event; 	Crestwood uses good housekeeping practices for winter road salt related work including loading, salt deliveries, and facility inspections. Details are provided in Crestwood's Snow and Ice Plan.

<ul style="list-style-type: none"> • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event; • a written inspection program for storage facility, structures and work area; • removing surplus materials from the site when winter activity finished where applicable; • annual inspection and repairs completed when practical; • evaluate the opportunity to reduce or reuse the wash water. 	
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Winter Maintenance Operations BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	As reported in Crestwood’s PMP, Crestwood is targeting 2027 for the implementation of this BMP.
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	As reported in Crestwood’s PMP, Crestwood is targeting 2027 for the implementation of this BMP.
Use equipment to measure the pavement temperature unless	As reported in Crestwood’s PMP, Crestwood is targeting 2027 for the implementation of this BMP.

such equipment has already been installed on road salt spreading vehicles.	
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	Crestwood varies the salt application rates based upon weather conditions during a storm. Information regarding application rates and materials is included in Crestwood's Snow and Ice Plan.
Track and record salt quantity used and storm conditions from each call-out.	Crestwood maintains records of each winter storm call-out. Information regarding recordkeeping is included in Crestwood's Snow and Ice Plan.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	See Crestwood's Snow and Ice Plan, at Exhibit A.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	Crestwood completes annual training for winter maintenance staff each year, as set forth in the Snow and Ice Plan.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	Crestwood completes annual training for winter maintenance staff each year, as set forth in the Snow and Ice Plan. Crestwood does not contract out for snow and ice removal.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	Crestwood will complete and submit an annual report each year to the IEPA and the workgroup by July 1.
Obtain and put into place equipment necessary to	As reported in Crestwood's PMP, Crestwood is targeting 2027 for the implementation of this BMP.

<p>implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre-wetting and proper rates of application.</p>	
<p>MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.</p>	<p>As reported in Crestwood’s PMP, Crestwood is targeting 2027 for the implementation of this BMP.</p>
<p>MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader’s application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.</p>	<p>As reported in Crestwood’s PMP, Crestwood is targeting 2027 for the implementation of this BMP.</p>

3.1 Analysis of BMPs Implemented

Crestwood refers to Exhibit A, its Snow and Ice Plan, for the details of the BMPs that Crestwood implemented during the preceding winter season. The 2023-2024 winter season was one of the more-mild winter seasons in recent memory in terms of total snow amounts and the amount of snow and ice call-outs. As a result, less salt was used than on average.

3.2 Analysis of Alternative Treatments or New Technology

Crestwood refers to Exhibit A, its Snow and Ice Plan, for the details of the guidelines that Crestwood implements during the Winter season. As noted therein, Crestwood currently averages only 500 tons of salt per season. As of this report, and as noted above, Crestwood, continues to consider whether any alternate treatments or new technologies would benefit its snow and ice operations.

4.0 Deicing/Anti-Icing Agents Used

Materials used by the Village of Crestwood for the 2023-2024 winter season are included as Appendix 1.

4.1 Application Rates

The application rates used by the Village of Crestwood for the 2023-2024 winter season are included as Appendix 2.

4.1.1 Application Rate Analysis

As noted in Crestwood's Snow and Ice Plan, Exhibit A, Crestwood's salt application rates vary with different weather conditions. As per policy, Crestwood's general practice is to not apply salt until after plowing has concluded. Further, when possible, salt is not applied to surfaces until the afternoon when the temperatures are typically warmest, allowing for maximum salt impact on ice. Crestwood implemented these practices during the 2023-2024 winter season and found them to be successful. Crestwood does not currently anticipate altering its application-rate practice for the next winter season.

4.2 Application Practices

The Village of Crestwood uses the following practices to apply deicing and anti-icing materials:

- Deicing with dry salt via trucks and attached salt spreaders on all roadways and the majority of parking surfaces.
- Deicing with dry salt on some parking surfaces and the sidewalk and walking surfaces.
- See Crestwood's Snow and Ice Plan, Exhibit A.

4.3 Call Outs

A total of approximately 10 inches of snow was reported in the Village of Crestwood for the 2023-2024 winter season. There were approximately two freezing rain events and six snow events for the 2023-2024 winter season. The Village of Crestwood had approximately eight call outs completed during the 2023-2024 winter season. A log of all call outs completed by the Village of Crestwood is included as Appendix 3.

4.4 Use of Liquids

Not applicable.

5.0 Training

The Village of Crestwood completed annual training for its employees who are part of the winter maintenance operations in November 2023. A list of annual training topics by type of employee is included as Appendix 4.

6.0 Deicing and Snow Removal Equipment and Maintenance

The Village of Crestwood uses equipment listed in Appendix 5 during winter maintenance activities.

6.1 Description of Equipment Washing and Wash Water Collection

The Village's salt trucks are cleaned inside a building with a triple catch basin triple basin system.

7.0 Material Storage

The Village of Crestwood maintains one (1) salt-storage area. Information regarding the storage area is included in Appendix 6.

8.0 Capital Purchases

Identified capital purchases from the Village of Crestwood's PMP to implement the BMPs and reduce chlorides in its operations over the first 5-year term of the Chloride TLWQS are included as Appendix 7.

8.1 Explanation of Capital Purchases Unable to Be Made According to the Reported Plan

In the Village of Crestwood's November 2022 PMP, it identified a future capital purchase of equipment to pre-wet salt and to measure the pavement temperature. The stated target year for this capital purchase is 2027 (or by the first re-evaluation period).

9.0 Environmental Monitoring Data

Chloride monitoring data is collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data is maintained by the workgroups. Chloride data for the CAWS is

collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, Illinois that collects continuous conductivity data to estimate chloride concentrations.

Chloride monitoring data reports are posted to <https://www.cawswatershed.org/reports/> and <https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/chloride-tlwqs/>.

10.0 Program Evaluation

This past winter season, it remained the Village of Crestwood's goal to make Village streets and parking lots safe and accessible during and after a storm for vehicles and pedestrians. With each call-out event, the Village attempted to clear all surfaces to bare pavement/concrete within twelve (12) hours of the end of a snowfall. The Village was successful with these goals during the 2023-2024 winter season.

For all storms, the Village's priority remained to plow the streets clean first and to not apply salt until after the storm event had concluded in order to minimize salt use. The Village also attempted to only apply salt during afternoon hours when the temperature and sun exposure were at their greatest. In general, the Village was able to meet this goal during the 2023-2024 winter season. Exceptions to the general guideline were made to high-traffic areas when needed. Based upon the total amount of salt actually used during the 2023-2024 winter season (169 tons), the Village's goals were met.

10.1 Proposed Steps for the Coming Year

For the 2024-2025 winter season, the Village currently does not have any proposed changes to its winter operation. Based upon the relatively low amount of salt used during the last winter season, changes are not warranted at this time.

11.0 Workgroup Participation

The Village of Crestwood attended all CAWS Chloride Workgroup meetings during the last year. The Village also attended the 2023 virtual deicing workshops hosted by the Salt Smart Collaborative. Prior to submitting Crestwood's Pollutant Minimization Plan to the Illinois EPA in November 2022, Crestwood submitted its draft PMP to The Conservation Foundation for its review and input. Crestwood also submitted its final PMP to the workgroup. Likewise, Crestwood submitted a draft of this annual report to The Conservation Foundation for its review and input and it will submit the final version of this annual report to the workgroup.

EXHIBIT A

VILLAGE OF CRESTWOOD

PUBLIC WORKS DEPARTMENT

SNOW AND ICE PLAN

Goals and Objectives

The Village of Crestwood provides snow and ice control for 77.5 actual lane miles, with 40 center-line miles of streets, four Village-owned parking lots, and the sidewalk in front of the Village Hall. Snow and ice control is considered emergency work in that pavement may need to be cleared any time of the day or night. Because of the potential hazard to the motoring public and the potential for high incidents of overtime involved in this program, careful planning and preparation must be done prior to the snow and ice season. This planning process is difficult due to the variable conditions encountered during each storm. Variables such as the rate and accumulation of snowfall, moisture content, temperature, time of day or night, wind direction and velocity, and duration all interact to make each storm unique.

It is the goal of the Public Works Department to make Village streets and parking lots safe and accessible during and after a storm for vehicles that are properly equipped for winter driving conditions, in accordance with the guidelines set forth herein. The Village will attempt to clear all routes to bare pavement and maintain a clear bare driving track on either side of the centerline within twelve (12) hours of the end of a snowfall. However, during and after a storm, some streets may be snow packed, and snow may be expected to accumulate adjacent to the traveled portion of the road.

In addition, the Public Works Department will attempt to make the four (4) public parking lots and the Village Hall sidewalk area safe and accessible for use during and after a storm, in accordance with the guidelines set forth herein. The Village will attempt to maintain access to the parking lots during business hours with the major clearing operation being completed during the evening and non-business hours. The Village will attempt to clear the Village Hall sidewalk to a bare surface and maintain a safe walking area for pedestrians within twelve (12) hours of the end of a one inch or greater snowfall.

It is also the goal of the Public Works Department to make the parking lots and walkways for all Village-owned facilities safe and accessible during the winter season. Caution is advised, however, when using Village facilities during the winter season because of the potential for hazardous conditions caused by snow, wind, and freezing temperatures.

Guidelines

The Public Works Department continuously monitors all winter snow and ice events, before, during, and after each event. The Public Works Department notifies personnel of hazardous road conditions due to snow and ice during normal work hours. After normal work hours, the Police Department watch commander will notify their dispatch center who, in turn, will notify the Public Works on-call person of the road conditions. The number of personnel called in may range from one (1) for isolated icing to five (5) for a full call-out situation. The Village uses five (5) snow plow trucks, with three (3) trucks having a 10-ton salt capacity and two (2) trucks having a 2-ton salt capacity. All Public Works personnel have a role in the snow and ice program. The Village completes annual training for winter maintenance staff each year before November 30th as to the below guidelines.

The Village plows only one (1) main street: Cal-Sag Road/Route 83 to the east and west of Cicero Avenue. The Village **does not** plow other main streets located in the Village limits, such as Cicero Avenue, Midlothian Turnpike, 127th Street, 135th Street, and Pulaski Avenue. Those main routes are cleared and maintained by either the State of Illinois or Cook County. The Village is primarily responsible for the side streets within the Village. The Village divides its streets into three (3) routes. The streets are plowed curb-to-curb and salted in both directions. For all storms, in general for all streets, the priority is to plow the streets clean first and to not apply salt until after the storm event has concluded in order to minimize salt use. In addition, the Village attempts to only apply salt during afternoon hours when the temperature and sun exposure is at their greatest. Exceptions to this general guideline are made to high-traffic areas, as needed.

Prior to implementing these best practices, the Village had averaged approximately 800 tons of salt each winter season. But since implementing these best practices several years ago, the Village currently only uses 500 tons of salt per season, on average, and often less. Salt application rates vary with different weather conditions. As noted above, the general practice is to not apply salt until after plowing has concluded. Further, when possible, salt is not applied to surfaces until the afternoon when the temperatures are typically warmest, allowing for maximum salt impact on ice. Colder conditions may call for higher application rates than warmer conditions.

Crestwood Public Works employs good housekeeping practices before, during, and after each winter event. The Village has one salt-storage facility, which is fully enclosed, and the salt is stored inside on an impervious pad. The Village's salt trucks park immediately outside of the door to the salt dome and the salt is then loaded into the trucks. Any salt spilled is either spread to cover the adjacent parking area or it is swept back up and place back inside the salt dome. Any excess salt from the working area does not come into contact with the stormwater system. The Village's salt trucks are cleaned inside a building with a triple catch basin triple basin system. The Village's good housekeeping practices also include, but are not limited to, the routine inspection and repair of equipment as needed. The Village's good housekeeping practices also include reporting information for each snow event including, but not limited to, material usage and temperature and storm accumulation totals. The Village keeps detailed records of all aspects of snow removal. Tons of salt used, miles driven, and weather conditions are all recorded after each snowfall.

Sodium Chloride (rock salt) is the only used de-icer due to its availability and cost. Salt is most effective when the temperatures are at 20 degrees or warmer with sunshine and traffic. However, when these conditions do not exist, the salt's effectiveness is reduced. As temperatures dip below 20 degrees, higher application rates and repeated applications over a longer period of time may be needed to achieve the same de-icing effort. To be an effective de-icer, salt requires heat and moisture – two things often lacking on cold, dry winter days.

The Village's rock salt is stored in a single salt dome building and typically the Village stores approximately 100 tons of salt at any given time at the Public Works facility. Quantities of salt are constantly monitored throughout the winter season to ensure that there is an adequate supply. The storage area is also maintained by staff to ensure that unwanted runoff does not occur.

The Village recognizes that conditions may be so unusual or unexpected that a departure from these procedures should be authorized. Therefore, when conditions warrant, the Village Services

Director, in consultation with other Village Public Works staff, the Police Chief, and the Fire Chief, as necessary, may order a departure from these procedures when, in their opinion, conditions require such action.

The purpose of these procedures is to establish goals for the Village regarding snow and ice control. It is not to be construed to create any duty to any individual, person, or entity. These procedures do not provide any special protection or service to any particular individual or group of individuals. No additional rights shall be granted to any individual or entity simply by adoption and enforcement of these procedures. These procedures may be affected, in total or in part, by acts of God, strikes, equipment breakdowns, weather conditions, inadequacy of equipment, State or Federal regulations, shortage of personnel, and any other unforeseen, uncontrollable, or unanticipated acts.

Organization Name: Village of Crestwood

**Chloride TLWQS Annual Report
Appendix 2 -Application Rates**

Per Crestwood's Snow and Ice Plan

Appendix 3 - Call Out Log

Dates	Quantity/Type of precipitation	Quantity of Salt Used (in tons)
6-Jan-24	Approximately 1" of snow	15
Januay 8-9, 2024	Approximately 3" of wet snow/freezing rain	34
January 12-14, 2024	Approximately 6" of wet snow/Freezing rain	58
19-Jan-24	Approximately 2" of snow	24
January 22-23, 2024	Appoximately .4" of freezing rain	10
23-Feb-24	Approximately 2.2" of snow	28
	Total in tons	169

Role in Winter Operations	Training Topics Covered
Director	The Village's Snow and Ice Plan, including all elements of winter snow and ice removal, including the following: loading and unloading salt; cleaning the salt storage area; operating the salt trucks and salt spreading equipment; plowing techniques; salt spreading procedures, including adjusting the rate of application depending on weather and road conditions.
Supervisor	Same
Maintenance Worker/Driver	Same

Type of Equipment	Equipment/Vehicle Number	Type of Spreader (mechanically controlled, computer controlled, etc.)	Type of Material Used with Equipment (Dry, Pre-Wet, Pretreated, Liquids)	Other Important Equipment Information
Snow plow truck (10 ton capacity)		Mechanically	Dry salt	
Snow plow truck (10 ton capacity)		Mechanically	Dry salt	
Snow plow truck (10 ton capacity)		Mechanically	Dry salt	
Snow plow truck (2 ton capacity)		Mechanically	Dry salt	
Snow plow truck (2 ton capacity)		Mechanically	Dry salt	

Location of Storage Area	Material Stored (Rock Salt, Salt Brine, etc.)	Amount of Material Stored 2023-2024	Material stored under permanent cover? (yes/describe other)	Material stored in a fully enclosed structure? (yes/describe other)	Material stored on an impervious pad? (yes/describe other)	Good housekeeping practices followed at storage area? (yes/describe other)
Public works facility	Rock salt	50 tons	Yes	Yes	Yes	Yes

Capital Purchase Description	Plan/Schedule for Purchase
Equipment to wet salt as it is deposited	Per PMP, planned implementation for 2027
Equipment to measure pavement temperature	Per PMP, planned implementation for 2027

Materials

Dry

Pre-Wet

Pretreated

Liquids