

# TECHNICAL INFORMATION SHEET: DIONIC AT No1 – LIQUOR TREATMENT

**PRODUCT NAME:****DIONIC AT No1****PRODUCT CODE:****DAT140****COMMODITY CODE:****28272000****PACKAGING:****25 AND 1200 KG**

## Description

Dionic AT No.1, is an acidic liquid, used in conjunction with Dionic HT No.2 to adjust alkalinity and to increase desirable ions in food and beverage industry product waters. It is especially used in the brewing industry as a liquor treatment.

## Benefits

- Reduces the alkalinity levels of brewing liquor stimulating maximum enzyme activity in the wort enabling optimum pH levels throughout the whole brewing process.
- Improves extract yield and fermentability
- Ensures correct balance of sulphate ions
- Improves clarity and stability of the finished product

## Guidelines for use

- Check that the product is within its shelf life before use
- Test your water regularly to obtain ideal dosage rates for the best results
- Read the Safety Data Sheet prior to use



### TECHNICAL SUPPORT

tel: +44 (0) 115 978 5494 | e: [techsupport@murphyandson.co.uk](mailto:techsupport@murphyandson.co.uk)

### REGULATORY COMPLIANCE INFORMATION

Refer to the **Product Specification Sheet** or contact us on  
tel: +44 (0) 115 978 5494 | e: [compliance@murphyandson.co.uk](mailto:compliance@murphyandson.co.uk)

### HEALTH & SAFETY INFORMATION

Refer to the **Safety Data Sheet (SDS)**

	Bitter	Strong Bitter	Lager (65°C)	Porter	Mild	Wheat	Stout
Calcium	180-220	220-220	120-140	130-160	120-140	180	120-140
Alkalinity	30-50	30-50	30-50	100	100	35	150
Chloride	150-300	200-300	Low	200-300	300	250	300
Sulphate	250-400	300-400	Low	200-300	150	220	100

TABLE 1. TYPICAL LEVELS OF IONS IN BREWING LIQUOR USED TO PRODUCE DIFFERENT TYPES OF BEER  
(ALL FIGURES ARE IN MILLIGRAMS PER LITRE COMMONLY KNOWN AS PPM)

## Principle

The objective of liquor treatment is to convert your water supply into acceptable brewing liquor.

Treating your brewing liquor is vitally important. When applied correctly all the steps throughout the brewing process will be at the optimum pH. If it is applied incorrectly you will get poor extract and beer that is difficult to clarify.

Liquor Treatments adjusts liquor alkalinity without the need for boiling by removing unwanted carbonate ions and adding desirable ions, such as chloride and sulphate in the correct ratios, ideal for most beer styles.

### Alkalinity

Alkalinity is mainly caused by calcium carbonate and bicarbonate. The alkalinity of your liquor plays a very important role in pH control. It causes high pH values throughout the brewing process. Hydrogen ions are removed from solution, thus wort pH remains high which results in low extract yield; presence of undesirable protein components; worts and beers prone to infection; increased extraction of silicates, polyphenols and tannins during sparge and harsh “after tastes” in the finished beer.

### pH

The pH of the liquor will have little effect on the pH of the wort and beer. Alkalinity and calcium are more important in pH control. Once you have established correct levels of these ions it is advisable to follow the guidelines of typical pH measurements in the brewing process shown below. pH meters can be purchased from Murphy and Son Ltd.

Raw Liquor	pH 6.0-8.0
Treated Liquor	pH 6.0-8.0
Mash	pH 5.2-5.5
1st Runnings	pH 4.8-5.2
Last Runnings	pH 5.4-5.6
Wort in Copper	pH 5.1-5.4
Wort after boil	pH 4.9-5.3
Beer after fermentation	pH 3.7-4.2

TABLE 2. TYPICAL pH MEASUREMENTS THROUGHOUT THE BREWING PROCESS

## Application and rates of use

The underlying principle of two part Dionic treatments is that one solution contains the calcium required and the other contains sulphate. Provided they are added to the hot liquor tank separately they remain ionised and in solution. Consequently the brewer is treating their liquor with calcium sulphate (gypsum) in solution and a lot of problems of sludge in the hot liquor tank are overcome. The remaining constituents that form the required balance of liquor treatment are divided between the two solutions.

Dionic may be added either to the cold or hot liquor tank. On no account should the two solutions be mixed together prior to the addition and this would result in the deposition of calcium sulphate and nullify the advantages of the Dionic system. The order of addition is unimportant, the turbulence caused in the flow of incoming liquor being sufficient to disperse the treatments. Standing time before mashing becomes unnecessary, but when acids are incorporated to neutralise excess carbonate alkalinity, the free carbon dioxide gas liberated should be removed by rousing. Additions should not start until the liquor tank is at least two-thirds filled to prevent too high a concentration of the solutions being present in too small a quantity of liquor. Under those circumstances some precipitation might occur.

Addition rates for Dionics are dependant on the levels of alkalinity and other important ions present in your untreated liquor. Raw liquor can have an alkalinity of up to 300 mg/litre. Brewers need to reduce their alkalinity down to a range of 30–100ppm (refer to table 1) depending on which beer styles they wish to produce. In some cases raw liquor can already be in that range so no acid treatment is required.

Levels of the relevant ions present in your liquor can be obtained from your Local Water Authority or you can send in 50ml of your raw liquor to Murphy's laboratory for a full analysis and suggested treatment rates. This service is free of charge once a year. Please note, Local Authority reports can provide results that are not up to date and may affect your calculations for ideal dosage rates. It is advisable to check the analysis of your water at least once a year, or on a more regular basis if the supply changes.

Another method of working out your alkalinity on a more regular basis, is to purchase alkalinity testing kits which Murphy and Son Ltd are able to supply.

Once you have obtained your analysis of your raw liquor you can then calculate your

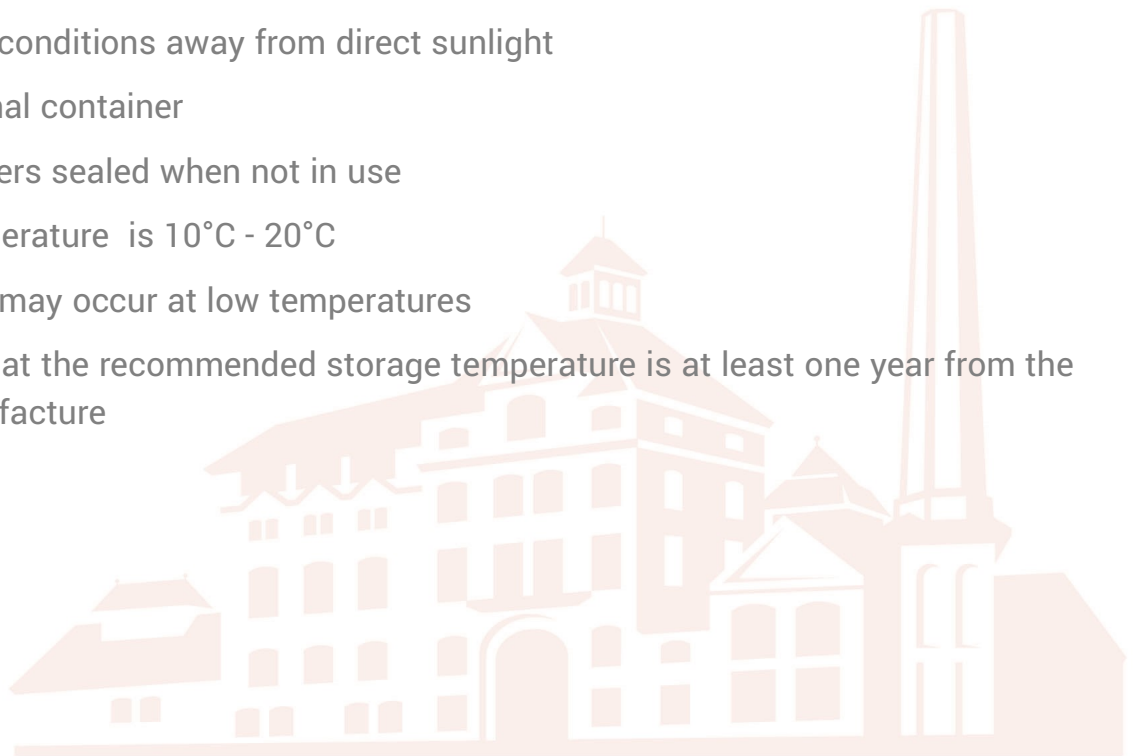
dosage rates by selecting which beer type you wish to brew and refer to table 1, this will help you determine how many ions to add or reduce.

All water used for brewing should be checked for suitability for beer style according to table 1. This includes any water that is used from the liquor tank, sparge or breakdown liquor.

Murphy's are more than happy to calculate these dosage rates for you.

## Storage and Shelf life

- Store in cool conditions away from direct sunlight
- Keep in original container
- Keep containers sealed when not in use
- Storage temperature is 10°C - 20°C
- Precipitation may occur at low temperatures
- The shelf life at the recommended storage temperature is at least one year from the date of manufacture



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