

PGA SOLUTION**1 DESCRIPTION**

PGA Solution is a solution of PGA Powder, a specially prepared food grade propylene glycol alginate derived from brown seaweed. It is used as a beer and cider foam stabiliser.

- ◆ Protects beer foam against contaminants at dispense e.g. dirty glasses
- ◆ Enhances foam stability of beers with a naturally high level of foam inhibitors
- ◆ Improves foam cling to side of glass
- ◆ Improves measured head retention value in beers

Propylene glycol alginate is a molecule possessing both hydrophilic and hydrophobic portions, thus modifying bubble wall characteristics. PGA concentrates at the surface of the bubble with the hydrophobic end interacting with gas molecules inside and outside the bubble and the hydrophilic part in contact with water molecules in the liquid forming the bubble wall. There is less attraction between the hydrophobic groups than there is between the water molecules in which the PGA is dissolved, so the surface tension at the bubble surface is reduced, stabilising the foam structure.

2 STORAGE AND SHELF LIFE

- Store in cool conditions, away from direct sunlight
- Maximum storage temperature - 20°C
- Recommended storage temperature - 5 to 15°C
- Minimum storage temperature - 1°C
- Do not allow the product to freeze
- The shelf life at the recommended storage temperature is 8 weeks from date of manufacture

3 PACKAGING

25 litre Drum	200 litre Drum	1000 litre IBC
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4 USING THE PRODUCT**(a) How much of the product to add**

Additions to beer of 0.2 litres/hl of PGA Solution will give ensure retention of beer head. To enhance the beer head, use a rate of 0.4 litres/hl. The maximum recommended addition of PGA Solution is 0.5 litres/hl.

Where to add the product

PGA Solution should be added to beer after final filtration and not in combination with any other additions.

5 GUIDELINES FOR USE

DO

- Check that the product is within its shelf life before use
- Remember that PGA solutions are temperature sensitive
- Carry out optimisation trials to determine the correct rate of use

DO NOT

- Add solutions of PGA in combination with any other products

6 TECHNICAL SUPPORT

For Health & Safety information on this product, please see the Materials Safety Data Sheet (MSDS)

For support and advice on the use of this product, please call or e-mail our Technical Administrator:-

Telephone:- + 44 (0)115 978 5494

E-Mail:- laboratory@murphyandson.co.uk

7 SPECIFICATION

Composition	A solution of propylene glycol alginate and sodium metabisulphite	
Appearance	A clear colourless liquid	
Odour	Sulphur dioxide (SO ₂)	
Specific Gravity (20°C)	1.0075 ± 0.0015	
Total Solids	1.9-2.3% w/v	
Esterified Carboxyl Groups (dry %w/w)	> 80%	
<u>Analysis</u>		
Sulphur dioxide (ppm)	500 ± 50 *	
pH	3.95 ± 0.45	
Haze (EBC)	< 5.0	
<u>Microbiological</u>		
Total Plate Count (cfu/ml)	< 100	
Yeast and Moulds (cfu/ml)	< 100	
E. coli	Absent in 1ml	
Salmonella	Absent in 25ml	
<u>Maximum Limits of Impurities</u>		
As (ppm)	3	
Pb (ppm)	10	
Heavy Metals as Pb (ppm)	40	
TCA (Trichloroanisole)	<0.05ppb	

* *The sulphur dioxide specification is that at the time of manufacture. Because of its volatile nature, the level at delivery may be less than this figure*

This product is classed as acceptable for use in food by the MAFF document 'Report on the Review of Additives and Processing Aids used in the Production of Beer' (FAC/REP/26)

Sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/litre expressed as SO₂ must be labelled as allergenic (*European Directive (2003/89/EC)*).

8 REFERENCE

Product	PGA Solution
Authorised by	C.J. Fleming
Issue No.	1.0

Product Code	PGAS
Formulation	5000
Date	17/05/12