**Gums and Stabilisers 2017:** Abstract for poster presentation in the area “Hydrocolloids for innovative food formulation and manufacture”

**Hydrocolloid based encapsulated air micro particles for innovative food manufacture**

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The vision of this research is to provide the food industry with encapsulated air micro particles as an ingredient to manufacture foam based products. This would cut out traditional whipping processes and open opportunities for novel product development. We have chosen spray drying as the process of particle manufacture based on literature reports on hollow hydrocolloid based sprayed particles1 and the hollow SODA-LO® Salt Microspheres are also produced via spray processes2. The requirements for air micro particles as food ingredient to provide foam microstructure are quite different though from hollow salt or sugar particles which are designed to dissolve upon contact with the aqueous environment of human saliva. Our innovative ingredient needs to retain its microstructure during incorporation in the food matrix and in subsequent processing steps, unless, the subsequent processing steps kinetically trap the air allowing then for the hydrocolloid based particle shell to hydrate. It becomes apparent that particle contact angle or wettability is a key property requiring control through surface active components in the formulation, which will also critically impact on the spray drying process and the morphology of the particles produced. Here we report from our initial research based on gum Arabic as the amphiphilic functional hydrocolloid in the particle forming matrix. Particles produced were hollow, of spherical shape and without apparent breakage.

*References:*

1  Paramita, V., Iida, K., Yoshii, H. and Furuta, T. (2010). Effect of additives on the morphology of spray-dried powder. *Drying Technology,* 28, 323–329.

2 Minter, S. J. and Maude, S. Salt product. U.S. Patent 8435555 (2013).