Case Study

INDION® 790 & INDION® 860 S for Gelatin Industry - 2

Introduction

Gelatin is used in cosmetics, metal refining, paper, plastics, toiletries, food and pharmaceutical products. It is a mixture of fats, proteins, minerals, enzymes and carbohydrates in the form of lactose. It is prepared by hydrolysis of collagen. The resulting solution contains high molecular weight protein and a considerable amount of mineral content or ash.

Ion Exchange (I) Ltd., conducted a study at a production facility which had 47 years of experience in manufacturing products like Gelatin, Ossein, Di Calcium Phosphate, Bone meal etc. Their product didn't meet customer specification and application requirement.

Challenge:

High ash content resulting in colourless/ pale yellow powder or granules after drying and product could not meet the requirements of the end users.

Solution:

Gelatin was passed through Ion Exchange columns containing INDION 790 & INDION 860 S.

A two bed approach is used with Strong Acid Cation (SAC) and either a Weak Base Anion (WBA) or a type II Strong Base Anion (SBA-II) resin.

Ion exchange (IX) resins removes mineral content and ensures that the product meets customer specifications and application requirements.

Results:

Detail of Gelatin deashing plant:

Parameter	INDION 790	INDION 860 S
Resin qty, liters	5568	6960
Regeneration level, kg / m^3	80	80
Service flow, m^3 / hr	12	12
Design OBR, m^3	120	120

Parameter	Before Treatment	After Treatment
Ash Content, w/w	0.8 %	0.2 %

<u>Pre-treatment</u>

a) SAC resins INDION 790

Rinse with approx 20 BV of water and exhaust with 2 BV of 4% NaOH or 10% NaCl solution followed by rinse, regenerate with 2 BV of HCl or H_2SO_4 followed by rinse.
Repeat the above steps one more time followed by regeneration and rinse

b) WBA resins

Exhaust the resin with 2 BV of 4% HCl or H_2SO_4.
Rinse. Regenerate with 2 BV of NaOH. Rinse.
Repeat the above steps one more time.