This talk will review our efforts on improving Butyl Rubber, a product which is over 80 years old. Isobutylene based rubbers have unique properties such as impermeability to air and various gases and is currently widely used in tire tubes. Halobutyl rubbers were invented and enabled tire innerliner applications. Star-branched butyl rubbers were developed to improve processability of butyl rubbers. Brominated isobutylene-co-p-methylstyrene rubbers delivered ozone and heat resistance through a saturated backbone and unique cross-linking chemistry.