ELVALOY™ AC as Masterbatch Carrier Resin

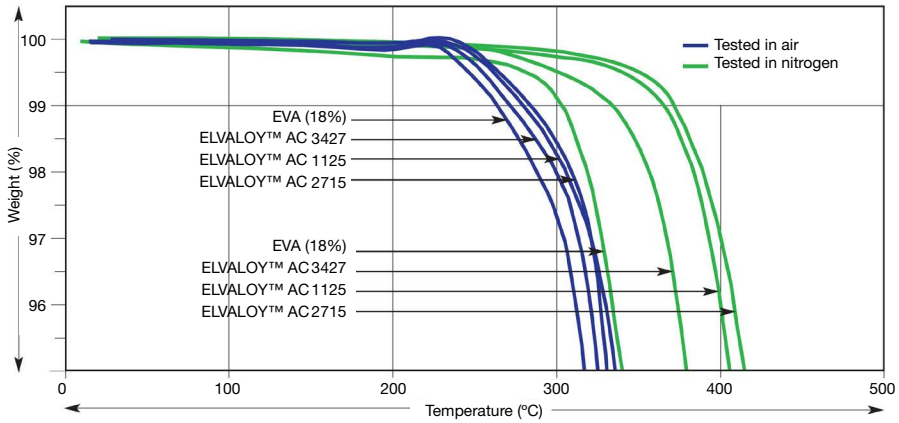
ELVALOY™ AC represents a family of ethylene acrylate copolymers. Their specific production process results in a heterogenous molecular structure and polymer chains with blocks of polar and non-polar sections. ELVALOY™ AC is therefore an attractive choice as masterbatch carrier resin with excellent filler acceptance, higher thermal resistance than incumbent solutions, and high compatibility to a broad range of polymers, from polyolefins to various engineering plastics. Beyond providing very good masterbatch characteristics, ELVALOY™ AC resins can also serve as a modifier to various materials, improving their mechanical performance and impact resistance in particular.

Key features and strengths of ELVALOY™ AC

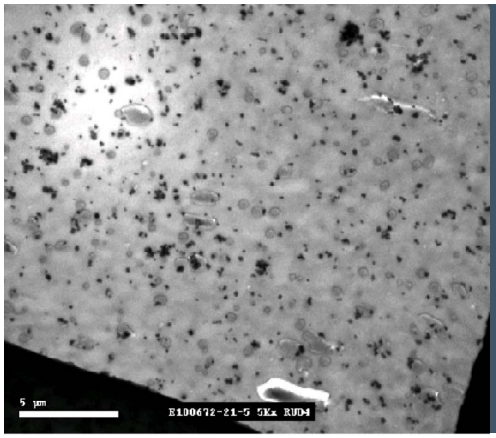
1. Broad compatibility with polar and non-polar resins relative to PE carriers or conventional acrylate copolymer resins. » More *universal* carrier resin than PE or EVA resins.

2. Superior thermal stability (especially EMA copolymers). » Higher process temperatures compared to EVA or competitive acrylates.

TGA curves for selected Ethylene Copolymers



3. Enhanced molecular architecture and polarity. » Greater acceptance and finer dispersion of a wide range of additives and functional fillers (pigments, flame retardants, slip agents, antiblock, antioxidants, UV stabilizers, antifog agents, antimicrobial, carbon black, TiO2, blowing agents).



TEM micrographs of Nylon 6 containing 5 wt% TiO2 materbatch: 60 wt% TiO2 based and 40% ELVALOY™ AC 1820.

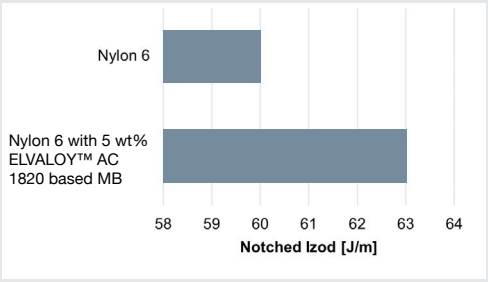
Key features and strengths of ELVALOY™ AC

4. Polar nature and flexibility at low temperatures (especially for EBA).

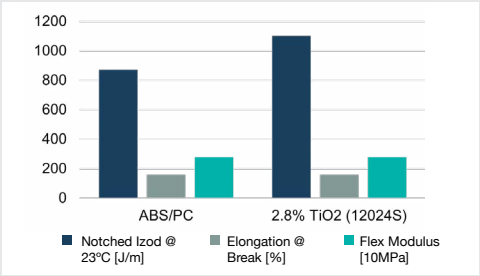
Impact performance enhancement of a variety of polymers and polymer blends with respect to PE-based masterbatches such as:

- Polyamide (PA)
- Polybutylene terephthalate (PBT)
- Polyethylene terephthalate (PET)
- Acrylonitrile butadiene styrene (ABS)
- Polypropylene (PP)
- Polyethylene (PE)
- PBT/ABS blends
- ABS/polycarbonate (PC) blends
- Polycarbonate (PC)

ELVALOY™ AC used as 60 wt% TiO2 masterbatch carrier resin improves the toughness of Nylon 6 at 5wt% addition.



ELVALOY™ AC used as 70% TiO2 masterbatch carrier resin improves blend toughness of ABS/PC (50/50 wt%) at 4% of addition.



5. Higher melt strength → Improved flow and processability.

ELVALOY™ AC Improves ABS Melt Flow

Modifier 10%	Viscosity [Pa.S] at 1000 1/s	% Viscosity Reduction
ABS Control	200	-
ELVALOY™ AC 1125	182	10
ELVALOY™ AC 1330	172	15

Broad range of ethylene/acrylate copolymers

Grade	Comonomer Type*	Acrylate (wt%)	MFR (dg/min, 2.16kg @ 190 °C)	Melting Point (°C)	Recommended Use
ELVALOY™ AC 1609	MA(1)	9	6	101	PA, PP, PE, EVA
ELVALOY™ AC 1218	MA(1)	18	2	94	PE, EVA
ELVALOY™ AC 1820	MA(1)	20	8	92	PA, PP, PE, EVA
ELVALOY™ AC 1224	MA(1)	24	2	91	PET, PC, PP, PE,EVA
ELVALOY™ AC 12024S	MA(1)(2)	24	32	88	PET, PC, PE, EVA
ELVALOY™ AC 1125	MA	25	0.5	90	ABS, PC blends, PE, EVA
ELVALOY™ AC 1330	MA(2)	30	3	85	ABS, PC blends
ELVALOY™ AC 2615	EA	15	6	97	PE, EVA
ELVALOY™ AC 2116	EA	16	1	96	PE, EVA
ELVALOY™ AC 3717	BA	17	7	96	PP, PE, EVA
ELVALOY™ AC 3427	BA	27	4	94	PBT, PP, PE, EVA
ELVALOY™ AC 34035	BA(2)	35	40	88	PBT

*MA stands for methyl acrylate, EA for ethyl acrylate and BA for butyl acrylate.
(1) Polymers may be used in contact with food – for more information contact the Dow regulatory department
(2) Contains antioxidant for improved thermal stability during compounding

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