

INJECTION

注塑成型加工参考资料如下:

注塑(射出)机: 大多数聚烯烃系能使用的注塑机均能使用 压缩比: >2.4以上
Injection molding refernces (most olefin plastic machines can be used)
Compression ratio: 2.4 and higher

CONDITIONS

料管温度/Cylinder Temperatures:	HA 规格/Grade	HN 规格/Grade	HC 规格/Grade
进料段/Feed Zone	180-190°C	240-255°C	170-180°C
中间段/Center Zone	185-200°C	250-265°C	175-190°C
出料前段/Front Zone	195-205°C	255-265°C	185-200°C
注塑口/Nozzle	200-220°C	260-270°C	195-205°C
模温/Mold Temperature	40~50°C	40~50°C	40~50°C
注塑压力/Injection Pressure	35-50 kg/cm2	45-60 kg/cm2	30-40 kg/cm2
注塑速度/Injection rate	适当/Moderate	适当/Moderate	慢速/Slow
保压时间/Hold Time	5 sec.	5 sec.	5 sec.
螺杆速度/Screw Speed	中速/Medium	中速/Medium	慢速/Slow
背压/Back Pressure	5-10 kg/cm ²	5-10 kg/cm ²	5-7 kg/cm ²
循环时间(以2mm厚度以下物件)Cycle Time, Goods material thickness under 2mm	15~30 sec.	15~25 sec.	15~30 sec.
材料熔融温度 material melting temp, during process	190~210°C NOT OVER 240°C	260~270°C NOT OVER 290°C	185~205°C NOT OVER 220°C



EMPILON 优能胶
HA SERIES

OVERMOLDING GRADE



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OVERMOLDING GRADE

EMPILON® HA series compound are specially designed for over-molding with engineering plastic such as ABS、PC、Nylon、PETG、PBT etc. which are commonly use in the 3C industry (Computer、Communication and Consumer electronics) as well as hand held device products for soft touch、anti-slip & vibration functional purposes. Hydrogenated Styrenic Block Copolymer is the main content of this HA series compound, its hardness range is from Shore A 52 to 77. They can be processed by Double injection and co-extrusion machines or ordinary plastic injection machines with an insert molding process.

EMPILON® HA-series compound are non-toxic and free of Pb、Cd、Hg、Cr⁶⁺、Sb、As、Ba、Se、halogen and DOP plasticizer, they also comply with the Restriction of the use of certain Hazardous Substance directive in electrical and electronic equipment (RoHS 2002/95/EC) and SONY SS-00259 that prohibit products that contain Pb、Cd、Hg、Cr⁶⁺、PBB and PBDE etc. They are 100% recyclable and comply with the Waste Electrical and Electronic Equipment directive (WEEE 2002/95/EC).

EMPILON® HA-series compound retain good mechanical properties after heating、weathering and solvent resistance testing and won't hydrolyze in water. They need 80°C ~ 90°C dehumidified hot air at least 2 hours before any molding process and need to be continually dried during operation. The HA series are Opaque or Transparent type in nature. For coloring, please select color master batch based on PE or EVA material with the exception of PVC. Higher screw speed and backpressure are necessary for better colorant dispersion.

HA SERIES

EMPILON® HA SERIES, HC SERIES, HN SERIES PHYSICAL PROPERTIES

			HA SERIES									
		METHOD 测试方法	UNIT 单位	HA40	HA50	HA60	HA70	HA272	HA363	H373	HB60	HP65
比重 Specific gravity		ASTM D792	—	1.07	1.02	1.03	1.04	1.05	1.05	1.05	1.01	1.1
硬度 Hardness		ASTM D2240	10Sec. shore	36A	52A	61A	70A	74A	61A	71A	65A	61A
抗张强度 Tensile strength		ASTM D412	kgf/cm ²	46	33	42	65	70	36	38	120	72
300% 抗张强度 300% Tensile strength		ASTM D412	kgf/cm ²	21	24	34	35	35	32	38	14	42
伸长率 Elongation at break		ASTM D412	%	780	420	440	490	500	500	550	720	570
流动指数 Melt index		ASTM D1238	g/10min	G6	G5	G8	G10	G1	G3	G2	G3	G6
接著力-ABS ABS Adhesion		HTM004	kgf/2.5cm	6	6	8	10	10	7	10	—	9
接著力-PETG PETG Adhesion		HTM004	kgf/2.5cm	—	—	—	—	—	—	—	5	—
接著力-PC PC Adhesion		HTM004	kgf/2.5cm	5	6	8	9	9	6	8	—	—
压缩变形 Compression set		ASTM D359 (23°C /70hrs)	%	41	32	38	38	19	44	25	6	19
脆化温度 Brittle temperature		估计值(estimate)	°C	-40	-40	-40	-40	-40	-40	-40	-40	-40
收缩率(参考用) Shrinkage (reference only)	平行 (machine direction)		%	1.9	1.0	0.5	0.3	0.4	1.2	0.8	0.7	1.0
	垂直 (transverse direction)		%	1.5	0.9	0.6	0.4	0.5	1.3	0.9	0.8	1.0
热老化 Thermal aging resistance	硬度变化 Hardness change	ASTM D573 125°C*168hrs)	shore	0	-3A	-3A	-1A	3A	-3A	-4A	-12A	4A
	抗张变化率 Tensile strength percentage change		%	94	13	-2	67	47	-2	83	7	-10
	伸长变化率 Elongation at Break percentage change		%	5	17	4	15	15	-22	25	-5	2
膠粒颜色 (color)		目視(by eye)		本色 (nature)								

* 以上数据由和泰实验室提供 * Data is provided by HOTAI laboratory.
* 流动指数: G表示为200°C/5kg测试条件。

注塑接著级

EMPILON® HA系列产品主要是与工程塑胶做注塑(射出)接著, 如ABS、PC、Nylon、PETG、PBT...等, 具有极佳的触感、雾面的质感、减震防滑, 多使用於3C电子产业,或手持握把, 它是以改性的氢化Styrenic block copolymer为主的掺配材料, 硬度范围在Shore A 52~77之间; 主要加工方式为双色注塑(double injection)或共挤出(co-extrusion)。

EMPILON® HA系列产品为无毒性材料, 不含八大重金属、卤素、DOP可塑剂...等有害物质, 是100%可回收的环保材料。可通过欧盟电子及电器设备废弃物处理法(WEEE)及电子资讯产品禁用化学物质法令(RoHS)规范、并符合SONY SS-00259环保要求。本系列产品有优异的机械特性, 耐候耐热反拨弹性, 更有耐化学药品性、耐水解性及低比重等特性。

EMPILON® HA系列产品, 加工前需以80°C~90°C热风乾燥(建议使用除湿乾燥)至少2小时以上, 且於注塑(射出)时仍需持续乾燥。欲将本系列产品染色时, 请选择以PE或EVA为基材之色母, 切勿使用以PVC为基材者;另外加工时请采用较高的螺杆转速和较高的背压, 才能让著色剂达到较好的分散效果。

			HC SERIES			HN SERIES				
		METHOD 测试方法	UNIT 单位	HC41	HC51	HC80	HN45	HN60	HN70	HN90
比重 Specific gravity		ASTM D792	—	0.91	0.91	0.94	1.19	1.20	1.26	1.22
硬度 Hardness		ASTM D2240	10Sec. shore	31A	49A	85A	45A	57A	71A	86A
抗张强度 Tensile strength		ASTM D412	kgf/cm ²	78	84	75	23	26	40	66
300% 抗张强度 300% Tensile strength		ASTM D412	kgf/cm ²	7	10	44	19	22	23	48
伸长率 Elongation at break		ASTM D412	%	780	600	500	600	480	550	570
流动指数 Melt index		ASTM D1238	g/10min	C6	C6	E10	G8	G20	G23	G4 ↑
接著力-PC PC Adhesion		HTM004	kgf/2.5cm	5	4	6	8	10	8	11
透光率 Transmittance		HTM006	%	87 ↑	87 ↑	70 ↑	37	44	20	54
压缩变形 Compression set		ASTM D359 (23°C /70hrs)	%	45	36	56	37	44	20	54
脆化温度 Brittle temperature		估计值(estimate)	°C	-50	-50	-50	-40	-40	-40	-40
收缩率(参考用) Shrinkage (reference only)	平行 (machine direction)		%	0.3	0.2	0.08	1.0	1.0	0.2	0.1
	垂直 (transverse direction)		%	0.5	0.5	0.04	1.2	1.0	0.2	0.1
热老化 Thermal aging resistance	硬度变化 Hardness change	ASTM D573 125°C*168hrs)	shore	—	—	—	4A	2A	2A	5A
	抗张变化率 Tensile strength percentage change		%	—	—	—	-4	-5	6	25
	伸长变化率 Elongation at Break percentage change		%	—	—	—	-9	-26	1	9

* 以上数据由和泰实验室提供
* Data is provided by HOTAI laboratory.
* 流动指数: G表示为200°C/5kg
测试条件。

Condition	C	E	G
Temperature(°C)	150	190	200
Loading(kg)	2.16	2.16	5