Integrated Device Technology, Inc.
2975 Stender Way, Santa Clara, CA - 95054

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: **SR-0212-02** DATE: 12/20/2002

Product Affected: TSOP package family
(see attachment for affected part #s).

Date Effective: 3/20/2003

MEANS OF DISTINGUISHING CHANGED DEVICES:
- ☐ Product Mark
- ☐ Back Mark
- ☒ Date Code
- ☐ Other

Contact: George Snell
Title: Quality Assurance Manager
Phone #: (831) 754-4556
Fax #: (831) 754-4672
E-mail: george.snell@idt.com

Attachment:: ☒ Yes ☐ No

Samples: Available upon request

DESCRIPTION AND PURPOSE OF CHANGE:
- ☐ Die Technology
- ☐ Wafer Fabrication Process
- ☐ Assembly Process
- ☐ Equipment
- ☒ Material
- ☐ Testing
- ☐ Manufacturing Site
- ☐ Data Sheet
- ☐ Other

IDT has qualified the TSOP package family using new mold compound EME-G700 (Sumitomo) and die attach material 3230 manufactured by (Ablestik). This notification is to advise our customer of adding these new assembly materials. Please see attachment for qualification data and additional details.

RELIABILITY/QUALIFICATION SUMMARY:

IDT has completed the qualification and the summary of results is attached.

CUSTOMER ACKNOWLEDGMENT OF RECEIPT:

IDT records indicate that you require written notification of this change. Please use the acknowledgement below or E-Mail to grant approval or request additional information. If IDT does not receive acknowledgement within 30 days of this notice it will be assumed that this change is acceptable.
IDT reserves the right to ship either version manufactured after the process change effective date until the inventory on the earlier version has been depleted.

Customer: _____ ☐ ***Approval for shipments prior to effective date.***

Name/Date: _____ E-Mail Address: _____

Title: _____ Phone# /Fax# : _____

CUSTOMER COMMENTS: _____

IDT ACKNOWLEDGMENT OF RECEIPT:

RECD. BY: _____ DATE: _____

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PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: SR-0212-02

PCN Type: To qualify new mold compound EME-G700 and die attach 3230 material.
Data Sheet Change: None
Detail Of Change: A new mold compound and die attach material has been qualified for TSOP package family. The details are as follow:

Description	Material	
	Old	New
Die attach material	Ablestik 8340, 8390, 84-1LMISR4	Ablestik 3230
Mold compound material	Shinetsu KMC 184 Sumitomo 6300 series 7351LP and 7320CR	Sumitomo EME-G700 series

The list of the products effected are as follows:

71016S12PH	71T016SA10PH	71V416S15PHI	71V424L10PH
71016S15PH	71T016SA12PH	71V416L10PH	71V424L12PH
71016S20PH	71T016SA15PH	71V416L12PH	71V424L15PH
71016S12PHI	71T016SA20PH	71V416L15PH	71V424L10PHI
71016S15PHI	71T016SA10PHI	71V416L10PHI	71V424L12PHI
71016S20PHI	71T016SA12PHI	71V416L12PHI	71V424L15PHI
71T016SA10PH	71T016SA15PHI	71V416L15PHI	71256SA10PZ
71T016SA12PH	71T016SA20PHI	71V424S10PH	71256SA15PZ
71T016SA15PH	71V416S10PH	71V424S12PH	71256SA20PZ
71T016SA20PH	71V416S12PH	71V424S15PH	71256SA25PZ
71T016SA10PHI	71V416S15PH	71V424S10PHI	71256SA10PZI
71T016SA12PHI	71V416S10PHI	71V424S12PHI	71256SA15PZI
71T016SA15PHI	71V416S12PHI	71V424S15PHI	71256SA20PZI
			71256SA25PZI

Conversion schedule (Estimated):

Please contact your local field sales representative for sample availability and production shipments.

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PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: SR-0212-02

Qualification Results:
Qualification Plan #: P02-08-01
Test Vehicle: IDT71V416

	Test Methods	Sample size /# of Fails	Test Results SS /# of Fails
Highly Accelerated Stress Test (HAST) (100 Hrs, @130° C/85%RH,Static Bias)	EIA/JESD22-A110	45/0	45/0
Life Test (Dynamic B/I, Vcc=4.00V, TA=135ºC) + end point electrical test, 750 hours or equivalent	MIL-STD-883, Method 1005	77/0	76/0 (a)
Temperature Cycling, (-65° C to +150° C, 500 cyc)	MIL-STD-883, Method 1010	45/0	44/0 (a)
Auto Clave (SPP), (168Hrs, @ 2ATM, 121° C)	EIA/JESD22-A102	45/0	45/0
High Temp Bake, 150º C, 1000 hours	MIL-STD-883, Method 1008	77/0	77/0
Package Moisture Characterization	JEDEC J-STD-20	45/0 (2 lots)	45/0 (2 lots)
Internal Visual Inspection	MIL-STD-883, Method 2010	5/0	5/0
External Visual Inspection	MIL-STD-883, Method 2009	25/0	25/0
X-ray Examination	Per IDT specification	45/0	45/0
Bond Pull Test	MIL-STD-883, Method 2011	5/0	5/0
Bake & Ball Shear Test	EIA/JESD22-B116	5/0	5/0
Physical Dimensions	MIL-STD-883, Method 2016	5/0	5/0
Resistance to Solvents	MIL-STD-883, Method 2015	3/0	3/0
Solderability Test	MIL-STD-883, Method 2003	5/0	5/0
Die Shear Test	MIL-STD-883, Method 2019	5/0	5/0

Notes: **There is no change in Moisture Sensitivity Level.**
(a) Mechanical rejects (broken leads).

SUMITOMO BAKELITE

SUMIKON®

EME-G700

MULTI-AROMATIC RESIN
Br/Sb FREE
FOR Pb FREE PKG
LOW WATER ABSORPTION

EME-G700

TYPICAL PROPERTIES:

ITEM	TEST METHOD	UNIT	VALUES
SPIRAL FLOW	SB-U-03-003	cm	110
GEL TIME (at 175°C)	SB-U-03-005	sec	30
THERMAL EXPANSION ∝1	SB-U-02-002	X 10^{-5} 1/°C	1.2
THERMAL EXPANSION ∝2	SB-U-02-002	X 10^{-5} 1/°C	4.9
Tg	SB-U-02-002	°C	130
THERMAL CONDUCTIVITY	SB-U-02-004	W/m •°C	88x 10^{-2}
FLEXURAL STRENGTH	SB-U-01-001	N/ mm^2	
(at 25°C)			170
(at 240°C)			21
FLEXURAL MODULUS	SB-U-01-002	X 10^2 N/mm^2	
(at 25°c)			190
(at 240°C)			6.0
SPECIFIC GRAVITY	SB-U-03-018	----------	1.95
VOLUME RESISTIVITY	SB-U-00-004	Ω - cm	1 x 10^{12}
(at 150°c)			
UL FLAME CLASS	SB-U-03-003	UL-94	V-0
WATER ABSORPTION	SB-U-03-002	% weight gain	0.15
(boiling, 24 h)			
EXTRACTED Na^+	SB-U-04-043	ppm	1
EXTRACTED Cl^-	SB-U-04-043	ppm	5

TYPICAL, NOT GUARANTEED PROPERTIES

MOLDING AND POST MOLD CURE CONDITIONS:

	STANDARD	RANGE
TRANSFER PRESSURE	80 x10^6 Pa	70-120 x10^6 Pa
MOLD TEMPERATURE	180°C	175-185°C
CURE TIME (C or A)#	A/90 sec	70-120 sec
POST-MOLD CURE TEMP	175°C	170-180°C
POST-MOLD CURE TIME	6 h	4-8 h

#Conventional or Auto

rev. Nov.'00

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SUMITOMO BAKELITE CO., LTD.
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ABLEBOND® 3230

LOW STRESS CONDUCTIVE DIE ATTACH ADHESIVE

DESCRIPTION

ABLEBOND® 3230 low stress, electrically conductive die attach adhesive is designed for high reliability packaging applications. This electrically conductive adhesive offers improved JEDEC performance, fast oven cure, and excellent adhesion to copper. It can be used in various package sizes.

FEATURES

- **Low stress**
- **Improved JEDEC performance**
- **Fast oven cure**
- **Excellent adhesion to copper**

TYPICAL UNCURED PROPERTIES		TEST DESCRIPTION	TEST METHOD
Filler Type	Silver		
Viscosity @ 25°C	9,000 cps	Brookfield CP-51 @ 5 rpm	PT-42
Thixotropic Index	5.6	Viscosity @ 0.5/Viscosity @ 5 rpm	PT-61
Estimated Work Life @ 25°C	24 hours	25% increase in viscosity @ RT	PT-59
Estimated Storage Life @ -40°C	1 year		PT-13
CURE PROCESS DATA			
Weight Loss on cure	3.9%	10 x 10 mm Si die on glass slide	PT-80
Recommended Cure Condition	30 minute ramp to 175°C; hold at 175°C for 15 minutes		

Typical properties are not intended to be used as specification limits. If you need to write a specification, please request our Standard Release Specification.

07/01

PHYSIOCHEMICAL PROPERTIES - POST CURE			TEST DESCRIPTION	TEST METHOD
Ionics	Chloride	5 ppm	Teflon flask 5 gm sample/ 20-40 mesh 50 gm DI water 100°C for 24 hours	CT-13
	Sodium	5 ppm		
	Potassium	1 ppm		
Glass Transition Temperature (Tg)		37°C	TMA penetration mode	MT-14
Coefficient of Thermal Expansion			TMA expansion mode	MT-9
	Below Tg	80 ppm/°C		
	Above Tg	205 ppm/°C		
Dynamic Tensile Modulus			Dynamic mechanical thermal analysis using <0.5 mm thick sample	MT-12
	@ -65°C	3500 MPa (510 Kpsi)		
	@ 25°C	2900 MPa (430 Kpsi)		
	@ 150°C	69 MPa (10 Kpsi)		
	@ 250°C	90 MPa (13 Kpsi)		
Moisture Absorption @ Saturation		0.29%	Dynamic vapor sorption after 85°C/85% RH exposure	PT-65
THERMAL/ELECTRICAL PROPERTIES - POST CURE				
Thermal Conductivity		0.6 W/mK	Laser flash	PT-96
Volume Resistivity		0.05 ohm-cm	4-point probe	PT-46
MECHANICAL PROPERTIES - POST CURE				
Die Shear Strength @ 25°C		15 kg_f/die	2 x 2 mm Si die on Ag/Cu LF	MT-4

Typical properties are not intended to be used as specification limits. If you need to write a specification, please request our Standard Release Specification.

ABLEBOND® 3230

LOW STRESS CONDUCTIVE DIE ATTACH ADHESIVE

APPLICATION GUIDELINES

SHIPMENT

This Ablestik product is packed and shipped in dry ice at -80°C. Inside every dry ice shipment of Ablestik's products is a small packet containing the ABLECUBE. This is a small blue cube which retains its shape at -40°C. If the ABLECUBE is exposed to temperatures higher than -40°C, the cube will melt.

Please check the state of the ABLECUBE to ensure the integrity of the shipment. If the ABLECUBE has melted upon Receiving Inspection, place the entire shipment in a -40°C freezer and contact your Ablestik Customer Service or Sales Representative.

UNPACKING

Transfer the syringes from the dry ice to a -40°C freezer without ANY delays. Freeze-thaw voids will form in the syringes if the syringes are repeatedly thawed and refrozen.

STORAGE

This Ablestik product must be stored at -40°C. The shelf life of the material is only valid when the material has been stored at the specified storage condition. Incorrect storage conditions will degrade the performance of the material in both handling (e.g. dispensing or screen printing) and final cured properties.

THAWING

Allow the container to reach room temperature before use. After removing from the freezer, set the syringes to stand vertically while thawing. Refer to Syringe Thaw Time chart below for the thaw time recommendation.

DO NOT open the container before contents reach ambient temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.

DO NOT re-freeze. Once thawed to room temperature, the adhesive should not be re-frozen.

ADHESIVE APPLICATION

Thawed adhesive should be immediately placed on dispense equipment for use. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive. Adhesive must be completely used within the product's recommended work life of 24 hours.

Apply enough adhesive to achieve a 25-50 µm (1-2 mil) wet bondline thickness, dispensed with approximately 25% - 50% filleting on all sides of the die. Alternate dispense amounts may be used depending on the application requirements. Star or cross shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

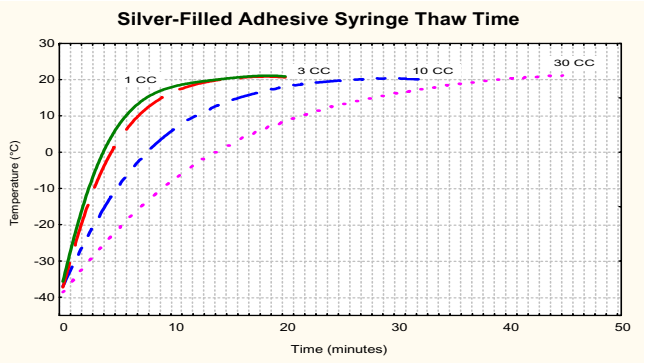
Contact Ablestik Technical Service Department for detailed recommendation on adhesive application, including dispensing.

CURE

This adhesive may be cured in box ovens. Refer to the recommended cure profile on this technical data sheet.

AVAILABILITY

Ablebond® adhesives are packaged in syringes or jars per customer specification. Available package sizes range from 1cc to 30cc and 1 ounce to 1 pound. For details, refer to the Ablestik Standard Package Data Set, or contact your Customer Service Representative.



CAUTION This product may cause skin irritation in sensitive persons. Avoid skin contact. If contact does occur, wash area immediately with soap and water. Please refer to Material Safety Data Sheet (OSHA) for more details.

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