

Appendix A. ACRONYMS AND ABBREVIATIONS

A/SP	Auto/Steel Partnership
ABP	acrylobenzophenone
ABS	acrylonitrile-butadiene-styrene
ACAP	Automotive Corrosion and Prevention Committee
ACC	Automotive Composites Consortium
ADFG	advanced drive file generation
AES	auger electron spectroscopy
AFS	American Foundry Society
AHSS	advanced high-strength steel
AISIS	American Iron and Steel Institute
AKDQ	aluminum-killed draw-quality
Al	aluminum
ALCOA	Aluminum Company of America
ALM	Automotive Lightweighting Materials
ALTC	Automotive and Light Truck Committee
AMD	Automotive Metals Division
AN	acrylonitrile
ANL	Argonne National Laboratory
APAW	aluminum plasma arc welding
APC	American Plastics Council
ARC	Automotive Research Consortium
AS	adaptive simulation
ASTM	American Society for Testing and Materials
BCC	body-centered cubic
BCF	Bead Correction Factor
BH	Bake Hardening
BH	blank holder
BHF	blank holder force
BIW	body-in-white
BLR	bolt load retention
CAD	computer-aided design
CAE	computer-aided engineering
CAFE	corporate average fuel economy
CANMET	National Resources Canada
CD	compact disk
CFC	carbon-fiber composite
CFD	computational fluid dynamics
CFRPMCs	carbon-fiber-reinforced polymer-matrix composites
CGR	circle grid analysis
CHIP	CIP/sinter/HIP
CIP	cold isostatic pressing
CLM	cast light metal
COV	coefficient of variability
CP	cold pressed
CRADA	cooperative research and development agreement
CVD	chemical vapor deposited

CWRU	Case Western Reserve University
CWT	Changing World Technologies
DAQ	data acquisition
dc	direct current
DCB	double-cantilever beam
DNS	double-notch shear
DOC	depth of cut
DOE	design of experiment
DOE	U.S. Department of Energy
DP	dual phase
DPF	direct powder forging
DQSK	drawing quality special-killed
DRIFT	Direct Reinforcement Fabrication Technology
DSC	dispersion strengthened copper
DTUL	deflection temperature under load
E	experimental
EDS	electron dispersive x-ray spectroscopy
EDS	energy-dispersive spectroscopy
EDX	energy dispersive x-ray
EFLC	enhanced forming limit curve
EFLD	enhanced forming limit diagram
EGN	exfoliated graphite nanostructure
ELV	end-of-life vehicle
EMF	electromagnetic forming
ENF	end-notch flexure
EWI	Edison Welding Institute
FBL	feedback linearization
FCVT	FreedomCAR and Vehicle Technologies
FE	finite element
FEA	finite-element analysis
FEM	finite-element method
FLC	forming-limit curve
FLD	forming-limit diagram
FP2	Focal Project 2
FP3	Focal Project 3
FY	fiscal year
GASP	grazing angle surface polarimeter
GM	General Motors
HAZ	heat affected zone
HDG	hot dip galvanized
HDPE	high-density polyethylene
HIP	hot isostatic pressing
HIPS	high-impact polystyrene
HPDC	high-pressure die casting
HSLA	high-strength low-alloy
HSS	high-strength steel

HTML	High Temperature Materials Laboratory
HVSC	Huron Valley Steel Corporation
ICS	Industrial Ceramic Solutions
IF	interstitial free
IFU	University of Stuttgart
IIW	International Institute of Welding
ipr	inches per rotation
IR	infrared
IRDI	Industrial Research and Development Institute
ISRM	intermediate strain rate machine
ITP	Industrial Technologies Program
ITP	International Titanium Powders, Inc.
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LCCF	low-cost carbon fiber
LFI	long fiber injection
LIBS	laser-induced breakdown spectroscopy
LLDPE	linear low-density polyethylene
LLNL	Lawrence Livermore National Laboratory
LPPM	low-pressure permanent mold
LWFS	lightweight front structure
MA	methylacrylate
MAP	microwave-assisted plasma
MFR	melt flow rate
MIG	metal inert gas
MIT	Massachusetts Institute of Technology
MMB	mixed-mode bending
MMC	metal matrix composite
MMCC	metal matrix cast composites
MOT	maximum operating temperature
MPCC	magnesium powertrain cast components
MPUL	mass per unit length
NAT	N. A. Technologies
NCC	National Composites Center
NCF	noncrimped fabric
NDE	nondestructive evaluation
NDT	nondestructive test
NIST	National Institute of Standards and Technology
NMR	nuclear magnetic resonance
NRCAN	Natural Resources of Canada
NTRC	National Transportation Research Center
NVH	noise vibration harshness
NWR	nuclear magnetic imaging
ODS	oxygen dispersion strengthened
OEM	original equipment manufacturer
OFC	oxygen-free copper

OPT	optimization
ORNL	Oak Ridge National Laboratory
P&S	press and sintering
P4	programmable powder preform process
PAN	polyacrylonitrile
PBDE	polybrominated diphenyl ether
PC	personal computer
PCB	polychlorinated biphenyl
PCD	polycrystalline diamond
PE	polyethylene
PID	proportional integral derivative
PM	powder metallurgy
PMC	polymer matrix composite
PMPRA	powder metallurgy particle-reinforced aluminum
PNNL	Pacific Northwest National Laboratory
PP	polypropylene
PPS	poly (phenylene sulfide)
PRA	particle-reinforced aluminum
PUF	polyurethane foam
PVB	polyvinyl butyral
PVC	polyvinyl chloride
R&D	research and development
RH	relative humidity
ROI	return on investment
ROM	read-only memory
RSW	resistance spot welding
RT	room temperature
RUC	representative unit cell
RVE	representative volume element
SA/RD	sales and administrative/research and development
SAE	Society of Automotive Engineers
SAMPE	Society for the Advancement of Material and Process Engineering
SC	sand casting
SCMD	structural cast magnesium development
SE	structuring element
SEA	specific energy absorption
SEM	scanning electron microscope
SENB	single-edge notch bend
sfm	surface feet per minute
SG	specific gravity
SHT	solution heat treatment
SIF	stress-intensity factor
SIMS	secondary-ion mass spectroscopy
SLS	single-lap shear
SMC	sheet molding compound
SNL	Sandia National Laboratories
SOC	substance of concern
SOM	solid-oxygen-conducting membrane

SPR	self-piercing rivet
SRI	Southern Research Institute
SRIM	structural reaction injection molding
STL	sound transmission loss
SUV	sport utility vehicle
TCM	technical cost model
TDM	Troy Design and Manufacturing
TEM	transmission electron spectroscopy
TGA	thermo-gravimetric
TMAC	Test Machine for Automotive Crashworthiness
TPI	Troy Polymers, Inc.
TRIP	transformation-induced plasticity
TWB	tailor-welded blank
UDRI	University of Dayton Research Institute
ULSAB	ultralight steel auto body
UM	University of Michigan
USAMP	U.S. Automotive Materials Partnership
USCAR	U.S. Council for Automotive Research
UT	University of Tennessee
UTS	ultimate tensile strength
UV	ultraviolet
VRP	Vehicle Recycling Partnership
WF	warm forming
XPS	x-ray photoelectron spectroscopy
YS	yield strength
YSZ	yttria-stabilized zirconia